

NASA

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA CR-

134406

(NASA-CR-134406) STABILITY AND CONTROL
CHARACTERISTICS FOR THE INNER MOLD LINE
CONFIGURATION OF THE SPACE SHUTTLE
ORBITER (CA110) (Chrysler Corp.) 328 p
HC \$19.50

N74-34320

Unclas
CSCL 22B G3/31 49653

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA Management services

SPACE DIVISION



**CHRYSLER
CORPORATION**

August, 1974

DMS-DR-2155
NASA CR-134,406

STABILITY AND CONTROL CHARACTERISTICS
FOR THE INNER MOLD LINE CONFIGURATION
OF THE SPACE SHUTTLE ORBITER (OA110)

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By

Data Management Services
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for

Engineering Analysis Division
Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number NAAL 721
NASA Series Number: OA110
Model Number: 16-0
Test Dates: 18 through 20 March 1974
Occupancy Hours: 48

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STABILITY AND CONTROL CHARACTERISTICS FOR THE
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Terrance Hughes and Robert Rogge, Rockwell International Space Division

ABSTRACT

Experimental aerodynamic investigations were conducted on a sting mounted 0.0405-scale representation of the -140A/B Inner Mold Line (IML) Space Shuttle Orbiter in the Rockwell International 7.75 x 11 Foot Low Speed Wind Tunnel. These tests were conducted during the time period from 18 March 1974 to 20 March 1974.

The primary test objectives were to establish basic longitudinal and lateral-directional stability and control characteristics for the IML Orbiter.

Additional configurations investigated were sealed elevon hingeline gaps, sealed rudder split line and hingeline gaps, larger radius leading edge on the vertical tail and sealed speedbrake base.

Aerodynamic force and moment data for the Orbiter were measured in the body-axis system by an internally mounted, six-component strain gage balance (2.5-inch task MK IX). The model was sting mounted with the center of rotation located at approximately the wing trailing edge (F. S. 60.272). The nominal angle of attack (α) range was from -4 to +30 degrees. Yaw polars were recorded over a nominal yaw angle (ψ) range from -14 to +14 degrees at constant α 's of 0, ± 5 , 10, 15 and 20 degrees.

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Note: Schedule of Coefficients Plotted on next page.

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SCHEDULE OF COEFFICIENTS PLOTTED:

- (A) CL, CN, CAF, CAB, CDF, CLM, XCP/L, L/DF Versus Alpha
CL Versus CDF
CL Versus CLM
- (B) CY, CYN, CBL Versus Beta
CYBETA, CYNBET, CBLBET Versus Alpha
- (C) CL, CN, CAF, CAB, CDF, CLM, XCP/L, L/DF Versus Alpha
CL Versus CDF
CL Versus CLM
DCLF, DCDF, DCLM Versus ELEVON
- (D) CY, CYN, CBL Versus Beta
DCY, DCYN, DCBL Versus Rudder
- (E) CY, CYN, CBL Versus Beta
CYBETA, CYNBET, CBLBET Versus Alpha
DCY, DCYN, DCBL Versus SPDBRK
- (F) CY, CYN, CBL Versus Beta
CYBETA, CYNBET, CBLBET Versus Alpha
DCY, DCYN, DCBL Versus Rudder
- (G) CY, CYN, CBL Versus Beta

NOMENCLATURE General

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
a		speed of sound; m/sec, ft/sec
C _p	CP	pressure coefficient; $(p_1 - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m ² , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m ² , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m ³ , slugs/ft ³

Reference & C.G. Definitions

A _b		base area; m ² , ft ²
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
\bar{l}_{REF} \bar{c}	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m ² , ft ²
	MRP	moment reference point
X _{MRP}	XMRP	moment reference point on X axis
Y _{MRP}	YMRP	moment reference point on Y axis
Z _{MRP}	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE (Continued)

Body-Axis System

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
C_l	CBL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$

Stability-Axis System

C_L	CL	lift coefficient; $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
C_l	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D_f	L/D_f	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (Continued)
(Additions to Standard List)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
A_{BC}	ABC	balance cavity area, ft^2
$C_{A_{BC}}$	CABC	balance cavity axial-force coefficient
C_{A_T}	CAT	model axial-force weight tare coefficient
HFT		horizontal flight test
L_B	LB	Orbiter fuselage length, ft
$P_{B1}, P_{B2}, P_{B3},$ P_{B4}, P_{B5}		model base pressures at orifice numbers 1-5, respectively, psia
P_{BC}		model balance chamber pressure, psia
X_{CP}/L_B	XCP/L	longitudinal center of pressure location, fraction of body length
X_{MRP}		moment reference point longitudinal location, inches aft of nose
δ_a	AILRON	aileron deflection angle, degrees
δ_e	ELEVON	elevon deflection angle, degrees
δ_r	RUDDER	rudder deflection angle, positive deflection trailing edge left, degrees
δ_{SB}	SPDBRK	speed brake deflection angle, degrees
δ_F	BDFLAP	bodyflap surface deflection angle, positive deflection trailing edge down, degrees

NOMENCLATURE (Concluded)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
C_{y_β}	CYBETA	side force coefficient derivative with Beta, per degree
C_{n_β}	CYNBET	yawing moment coefficient derivative with Beta, per degree
C_{ℓ_β}	CBLBET	rolling moment coefficient derivative with Beta, per degree.
ΔC_{D_f}	DCDF	incremental forebody drag coefficient
ΔC_{L_f}	DCLF	incremental forebody lift coefficient
ΔC_m	DCLM	incremental pitching moment coefficient
	V-GRIT	vertical tail transition grit (.000 equivalent to X31 - no grit on vertical tail, .008 equivalent to X29 - .0076 diameter grit on vertical tail).
ΔC_y	DCY	incremental side force coefficient
ΔC_n	DCYN	incremental yawing moment coefficient
ΔC_ℓ	DCBL	incremental rolling moment coefficient

CONFIGURATIONS INVESTIGATED

The model utilized for this test period was an 0.0405-scale model of the -140A/B Orbiter Inner Mold Line Horizontal Flight Test Vehicle designated 16-0. The basic model is of the blended wing-body concept utilizing a double delta wing ($75^\circ/45^\circ$ $\Lambda_{L.E.}$), full span elevons (unswept hingeline), a centerline vertical tail with rudder and/or speedbrake capability, a canopy, and orbital maneuvering system (OMS) pods mounted on the aft fuselage sidewalls. This configuration represents the Orbiter with all thermal protection system (TPS) removed.

For this test period the following nomenclature was used to designate the various model components:

Component

B ₆₁	-140A/B HFT Orbiter fuselage, simulates inner mold line
C ₁₁	-140A/B HFT inner mold line Orbiter canopy
E ₄₀	-140A/B Orbiter HFT elevons used on wing W ₁₂₄ , simulates inner mold line
E ₄₁	E ₄₀ with upper surface seals removed
E ₄₂	E ₄₀ with both upper and lower seals removed
F ₁₂	-140A/B HFT Orbiter bodyflap
M ₅₁	-140A/B orbital maneuvering system (OMS), simulates inner mold line
R ₁₅	-140A/B Orbiter HFT rudder used with vertical tail V ₁₉ . All hingelines sealed
R ₁₆	R ₁₅ with hingeline seals removed

CONFIGURATIONS INVESTIGATED (Continued)

R ₁₇	R ₁₅ with seal between upper and lower rudder segment removed
V ₁₉	-140A/B Orbiter HFT vertical tail, simulates inner mold line
V ₂₀	V ₁₉ with leading edge contour modification
V ₂₁	V ₂₀ with vertical tail base plugged between speedbrake panels
W ₁₂₄	-140A/B inner mold line double delta Orbiter HFT wing (75°/45° $\Lambda_{L.E.}$)
W ₁₂₅	W ₁₂₄ with squared off wing tips aft of 20% element line upper wing surface only
X ₂₉	transition grit composed of glass beads located aft of all swept surfaces and the model nose
X ₃₁	same as X ₂₉ except vertical tail not gritted

CONFIGURATIONS INVESTIGATED (Concluded)

Configurations Tested

B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ V₁₉ R₁₇ X₃₁
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ V₁₉ R₁₅ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₁ V₁₉ R₁₅ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₂ V₁₉ R₁₅ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ V₁₉ R₁₆ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ V₁₉ R₁₇ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ V₂₀ R₁₅ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₄ E₄₀ V₂₁ R₁₅ X₂₉
B₆₁ C₁₁ F₁₂ M₅₁ W₁₂₅ E₄₀ V₂₁ R₁₅ X₂₉

TEST FACILITY DESCRIPTION

The North American Aerodynamics Laboratory (NAAL) 7.75 x 11-Foot Wind Tunnel is a continuous flow, closed circuit, single return type tunnel capable of speeds up to 200 miles per hour. The test section is vented to atmospheric pressure and is 7.75 x 11 feet wide by 12 feet in length. Power is supplied by a 1250 horsepower nacelle mounted synchronous motor driving a 18 foot, seven blade, laminated birch propeller. The airspeed is controlled by varying the degree of coupling between the motor and propeller by means of a magnetic clutch. A damping screen and honeycomb section in the settling chamber upstream from the contraction cone (ratio 7.53 to 1) minimizes turbulence in the test section. The NAAL Wind Tunnel has been in operation since June 1943 and calibrations are available over a wide range of test conditions.

Tests may be conducted using a variety of mounting systems, e.g.; a single strut, double strut, sting strut, reflection plane, cable suspension, and two dimensional wall. Aerodynamic data may be measured by a planar type external balance system or sting mounted internal balances. An Astrodata Automatic Data Acquisition System is used to collect, multiplex, digitize, and record 50 channels of force and/or pressure data on magnetic tape. This data is then rapidly reduced and plotted using automatic data processing equipment and an automatic digital plotter.

DATA REDUCTION

The aerodynamic force and moment data presented were measured by the Task Corporation 2.5-inch MK IX strain gage balance. The data have been corrected for model base and balance chamber pressure effects, model blockage influence on tunnel dynamic pressure, wall interference effects, sting and balance deflections, and model weight tare.

Corrections made to axial force were accomplished in the following manner:

$$C_{A_f} = C_A - C_{A_{BC}} - C_{A_b} - C_{A_T}$$

where:

C_A = axial-force coefficient

$C_{A_{BC}}$ = balance chamber correction

$$= - \left(\frac{P_{BC} - P_0}{q} \right) \left(\frac{A_{BC}}{S} \right)$$

C_{A_b} = base end correction

$$= - \left(\frac{P_b - P_0}{q} \right) \left(\frac{A_b}{S} \right), \quad P_b = 1/5 (P_{B1} + \dots + P_{B5})$$

C_{A_T} = axial force weight tare correction

The model center of pressure location was computed in percent of body length:

$$X_{CP}/L_B = [X_{MRP} - \left(\frac{C_m \bar{c}}{C_N} \right)]/L_B$$

DATA REDUCTION (Concluded)

where:

X_{MRP} = moment reference point on x-axis, inches aft of nose

L_B = body length, in.

The following reference dimensions were used for reducing all aerodynamic data to coefficient form:

<u>Symbol</u>	<u>Definition</u>	<u>Value</u>
A_b	Area of base (OMS on), ft ²	0.5855
A_{BC}	Area of balance cavity, ft ²	0.0985
S	Wing area, ft ²	4.412
X_{MRP}	moment reference point on x-axis, fus. sta., in	43.5974
Z_{MRP}	moment reference point on z-axis, water plane, in.	15.1875
L_B	length of orbiter body, in.	52.257
\bar{c} (LREF)	wing M.A.C., in.	19.230
b (BREF)	wing span, in.	37.936

TABLE I.

[illegible]

TABLE II.

TEST: 0110 1111 721

DATE: 3-11-71

DATA SET/RUN NUMBER COLLATION SUMMARY

TEST RUN NUMBERS

DATA SET IDENTIFIER	CONFIGURATION	SCHD.	PARAMETERS/VALUES								NO. OF RUNS	MACH NUMBERS		
			α	β	γ	δ	ϵ	ζ	η	θ		ϕ	ψ	
RF5001	B ₆₁ C ₁₁ F ₁₂ M ₅₁ W ₁₂₄ E ₄₀ X ₂₉	A	0	0	0	0	0	0	0	0	0	1	1	
002		0	0										2	
003		5											3	
004		0											4	
005		15											5	
006		20											6	
007	B ₆₁ C ₁₁ F ₁₂ M ₅₁ W ₁₂₄ E ₄₀ V ₆₁ R ₁₃₁	A	0								0	25	7	
008		0	0										8	
009		5											9	
010		10											10	
011			A	0									11	
012		15		0									12	
013		0											13	
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TABLE II. - Continued.

TEST: 0A110										NAAL 721										DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 3-22-74									
DATA SET IDENTIFIER		CONFIGURATION		SCHD.		PARAMETERS/VALUES										NO. OF RUNS		MACH NUMBERS																					

TABLE II. - Continued.

TEST: OA110		NAAL 721		DATA SET/RUN NUMBER COLLATION SUMMARY														DATE: 3-22-74	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES								NO. OF RUNS	MACH NUMBERS						
		α	β	ϕ	δF	$\delta \alpha$	δe	δR	δSB										
RF5037	$B_2 C_{11} F_{12} M_{51} W_{124} E_{40} V_{10} R_{16} X_{29}$	A	O	O	-11.7	O	O	O	25	1	37	37							
038	\downarrow	IO	C								38	38							
039	$V_{10} R_{17} X_{29}$	A	O								39	39							
040	\downarrow	IO	C								40	40							
041	\downarrow	\downarrow	\downarrow								41	41							
042	$V_{10} R_{16} X_{29}$	\downarrow	\downarrow								42	42							
043	$V_{12} R_{15} X_{29}$	A	O						85		43	43							
044	\downarrow	IO	C								44	44							
045	$V_{10} R_{17} X_{29}$	A	O								45	45							
046	\downarrow	IO	C								46	46							
047	$V_{10} R_{16} X_{29}$	A	O								47	47							
048	\downarrow	IO	C								48	48							
049	\downarrow	\downarrow	\downarrow								49	49							
050	$V_{10} R_{17} X_{29}$	\downarrow	\downarrow								50	50							
051	$V_{10} R_{15} X_{29}$	\downarrow	\downarrow								51	51							
052	$V_{21} R_{15} X_{29}$	\downarrow	\downarrow								52	52							
053	\downarrow	\downarrow	\downarrow								53	53							
054	\downarrow	A	O								54	54							
COEFFICIENTS														67		75			
$\alpha(A) = -4, -2, -1, 0, 1, 2, -30$														61		67			
$\beta(C) = -1, 1 \rightarrow +1, 1 \rightarrow 2$														55		67			
SCHEDULES														MACH		75			
C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 C44 C45 C46 C47 C48 C49 C50 C51 C52 C53 C54 C55 C56 C57 C58 C59 C60 C61 C62 C63 C64 C65 C66 C67 C68 C69 C70 C71 C72 C73 C74 C75 C76 C77 C78 C79 C80 C81 C82 C83 C84 C85 C86 C87 C88 C89 C90 C91 C92 C93 C94 C95 C96 C97 C98 C99 C100 C101 C102 C103 C104 C105 C106 C107 C108 C109 C110 C111 C112 C113 C114 C115 C116 C117 C118 C119 C120 C121 C122 C123 C124 C125 C126 C127 C128 C129 C130 C131 C132 C133 C134 C135 C136 C137 C138 C139 C140 C141 C142 C143 C144 C145 C146 C147 C148 C149 C150 C151 C152 C153 C154 C155 C156 C157 C158 C159 C160 C161 C162 C163 C164 C165 C166 C167 C168 C169 C170 C171 C172 C173 C174 C175 C176 C177 C178 C179 C180 C181 C182 C183 C184 C185 C186 C187 C188 C189 C190 C191 C192 C193 C194 C195 C196 C197 C198 C199 C200 C201 C202 C203 C204 C205 C206 C207 C208 C209 C210 C211 C212 C213 C214 C215 C216 C217 C218 C219 C220 C221 C222 C223 C224 C225 C226 C227 C228 C229 C230 C231 C232 C233 C234 C235 C236 C237 C238 C239 C240 C241 C242 C243 C244 C245 C246 C247 C248 C249 C250 C251 C252 C253 C254 C255 C256 C257 C258 C259 C260 C261 C262 C263 C264 C265 C266 C267 C268 C269 C270 C271 C272 C273 C274 C275 C276 C277 C278 C279 C280 C281 C282 C283 C284 C285 C286 C287 C288 C289 C290 C291 C292 C293 C294 C295 C296 C297 C298 C299 C300 C301 C302 C303 C304 C305 C306 C307 C308 C309 C310 C311 C312 C313 C314 C315 C316 C317 C318 C319 C320 C321 C322 C323 C324 C325 C326 C327 C328 C329 C330 C331 C332 C333 C334 C335 C336 C337 C338 C339 C340 C341 C342 C343 C344 C345 C346 C347 C348 C349 C350 C351 C352 C353 C354 C355 C356 C357 C358 C359 C360 C361 C362 C363 C364 C365 C366 C367 C368 C369 C370 C371 C372 C373 C374 C375 C376 C377 C378 C379 C380 C381 C382 C383 C384 C385 C386 C387 C388 C389 C390 C391 C392 C393 C394 C395 C396 C397 C398 C399 C400 C401 C402 C403 C404 C405 C406 C407 C408 C409 C410 C411 C412 C413 C414 C415 C416 C417 C418 C419 C420 C421 C422 C423 C424 C425 C426 C427 C428 C429 C430 C431 C432 C433 C434 C435 C436 C437 C438 C439 C440 C441 C442 C443 C444 C445 C446 C447 C448 C449 C450 C451 C452 C453 C454 C455 C456 C457 C458 C459 C460 C461 C462 C463 C464 C465 C466 C467 C468 C469 C470 C471 C472 C473 C474 C475 C476 C477 C478 C479 C480 C481 C482 C483 C484 C485 C486 C487 C488 C489 C490 C491 C492 C493 C494 C495 C496 C497 C498 C499 C500 C501 C502 C503 C504 C505 C506 C507 C508 C509 C510 C511 C512 C513 C514 C515 C516 C517 C518 C519 C520 C521 C522 C523 C524 C525 C526 C527 C528 C529 C530 C531 C532 C533 C534 C535 C536 C537 C538 C539 C540 C541 C542 C543 C544 C545 C546 C547 C548 C549 C550 C551 C552 C553 C554 C555 C556 C557 C558 C559 C560 C561 C562 C563 C564 C565 C566 C567 C568 C569 C570 C571 C572 C573 C574 C575 C576 C577 C578 C579 C580 C581 C582 C583 C584 C585 C586 C587 C588 C589 C590 C591 C592 C593 C594 C595 C596 C597 C598 C599 C600 C601 C602 C603 C604 C605 C606 C607 C608 C609 C610 C611 C612 C613 C614 C615 C616 C617 C618 C619 C620 C621 C622 C623 C624 C625 C626 C627 C628 C629 C630 C631 C632 C633 C634 C635 C636 C637 C638 C639 C640 C641 C642 C643 C644 C645 C646 C647 C648 C649 C650 C651 C652 C653 C654 C655 C656 C657 C658 C659 C660 C661 C662 C663 C664 C665 C666 C667 C668 C669 C670 C671 C672 C673 C674 C675 C676 C677 C678 C679 C680 C681 C682 C683 C684 C685 C686 C687 C688 C689 C690 C691 C692 C693 C694 C695 C696 C697 C698 C699 C700 C701 C702 C703 C704 C705 C706 C707 C708 C709 C710 C711 C712 C713 C714 C715 C716 C717 C718 C719 C720 C721 C722 C723 C724 C725 C726 C727 C728 C729 C730 C731 C732 C733 C734 C735 C736 C737 C738 C739 C740 C741 C742 C743 C744 C745 C746 C747 C748 C749 C750 C751 C752 C753 C754 C755 C756 C757 C758 C759 C760 C761 C762 C763 C764 C765 C766 C767 C768 C769 C770 C771 C772 C773 C774 C775 C776 C777 C778 C779 C780 C781 C782 C783 C784 C785 C786 C787 C788 C789 C790 C791 C792 C793 C794 C795 C796 C797 C798 C799 C800 C801 C802 C803 C804 C805 C806 C807 C808 C809 C810 C811 C812 C813 C814 C815 C816 C817 C818 C819 C820 C821 C822 C823 C824 C825 C826 C827 C828 C829 C830 C831 C832 C833 C834 C835 C836 C837 C838 C839 C840 C841 C842 C843 C844 C845 C846 C847 C848 C849 C850 C851 C852 C853 C854 C855 C856 C857 C858 C859 C860 C861 C862 C863 C864 C865 C866 C867 C868 C869 C870 C871 C872 C873 C874 C875 C876 C877 C878 C879 C880 C881 C882 C883 C884 C885 C886 C887 C888 C889 C890 C891 C892 C893 C894 C895 C896 C897 C898 C899 C900 C901 C902 C903 C904 C905 C906 C907 C908 C909 C910 C911 C912 C913 C914 C915 C916 C917 C918 C919 C920 C921 C922 C923 C924 C925 C926 C927 C928 C929 C930 C931 C932 C933 C934 C935 C936 C937 C938 C939 C940 C941 C942 C943 C944 C945 C946 C947 C948 C949 C950 C951 C952 C953 C954 C955 C956 C957 C958 C959 C960 C961 C962 C963 C964 C965 C966 C967 C968 C969 C970 C971 C972 C973 C974 C975 C976 C977 C978 C979 C980 C981 C982 C983 C984 C985 C986 C987 C988 C989 C990 C991 C992 C993 C994 C995 C996 C997 C998 C999 C1000 C1001 C1002 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C1010 C1011 C1012 C1013 C1014 C1015 C1016 C1017 C1018 C1019 C1020 C1021 C1022 C1023 C1024 C1025 C1026 C1027 C1028 C1029 C1030 C1031 C1032 C1033 C1034 C1035 C1036 C1037 C1038 C1039 C1040 C1041 C1042 C1043 C1044 C1045 C1046 C1047 C1048 C1049 C1050 C1051 C1052 C1053 C1054 C1055 C1056 C1057 C1058 C1059 C1060 C1061 C1062 C1063 C1064 C1065 C1066 C1067 C1068 C1069 C1070 C1071 C1072 C1073 C1074 C1075 C1076 C1077 C1078 C1079 C1080 C1081 C1082 C1083 C1084 C1085 C1086 C1087 C1088 C1089 C1090 C1091 C1092 C1093 C1094 C1095 C1096 C1097 C1098 C1099 C1100 C1101 C1102 C1103 C1104 C1105 C1106 C1107 C1108 C1109 C1110 C1111 C1112 C1113 C1114 C1115 C1116 C1117 C1118 C1119 C1120 C1121 C1122 C1123 C1124 C1125 C1126 C1127 C1128 C1129 C1130 C1131 C1132 C1133 C1134 C1135 C1136 C1137 C1138 C1139 C1140 C1141 C1142 C1143 C1144 C1145 C1146 C1147 C1148 C1149 C1150 C1151 C1152 C1153 C1154 C1155 C1156 C1157 C1158 C1159 C1160 C1161 C1162 C1163 C1164 C1165 C1166 C1167 C1168 C1169 C1170 C1171 C1172 C1173 C1174 C1175 C1176 C1177 C1178 C1179 C1180 C1181 C1182 C1183 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C1516 C1517 C1518 C1519 C1520 C1521 C1522 C1523 C1524 C1525 C1526 C1527 C1528 C1529 C1530 C1531 C1532 C1533 C1534 C1535 C1536 C1537 C1538 C1539 C1540 C1541 C1542 C1543 C1544 C1545 C1546 C1547 C1548 C1549 C1550 C1551 C1552 C1553 C1554 C1555 C1556 C1557 C1558 C1559 C1560 C1561 C1562 C1563 C1564 C1565 C1566 C1567 C1568 C1569 C1570 C1571 C1572 C1573 C1574 C1575 C1576 C1577 C1578 C1579 C1580 C1581 C1582 C1583 C1584 C1585 C1586 C1587 C1588 C1589 C1590 C1591 C1592 C1593 C1594 C1595 C1596 C1597 C1598 C1599 C1600 C1601 C1602 C1603 C1604 C1605 C1606 C1607 C1608 C1609 C1610 C1611 C1612 C1613 C1614 C1615 C1616 C1617 C1618 C1619 C1620 C1621 C1622 C1623 C1624 C1625 C1626 C1627 C1628 C1629 C1630 C1631 C1632 C1633 C1634 C1635 C1636 C1637 C1638 C1639 C1640 C1641 C1642 C1643 C1644 C1645 C1646 C1647 C1648 C1649 C1650 C1651 C1652 C1653 C1654 C1655 C1656 C1657 C1658 C1659 C1660 C1661 C1662 C1663 C1664 C1665 C1666 C1667 C1668 C1669 C1670 C1671 C1672 C1673 C1674 C1675 C1676 C1677 C1678 C1679 C1680 C1681 C1682 C1683 C1684 C1685 C1686 C1687 C1688 C1689 C1690 C1691 C1692 C1693 C1694 C1695 C1696 C1697 C1698 C1699 C1700 C1701 C1702 C1703 C1704 C1705 C1706 C1707 C1708 C1709 C1710 C1711 C1712 C1713 C1714 C1715 C1716 C1717 C1718 C1719 C1720 C1721 C1722 C1723 C1724 C1725 C1726 C1727 C1728 C1729 C1730 C1731 C1732 C1733 C1734 C1735 C1736 C1737 C1738 C1739 C1740 C1741 C1742 C1743 C1744 C1745 C1746 C1747 C1748 C1749 C1750 C1751 C1752 C1753 C1754 C1755 C1756 C1757 C1758 C1759 C1760 C1761 C1762 C1763 C1764 C1765 C1766 C1767 C1768 C1769 C1770 C1771 C1772 C1773 C1774 C1775 C1776 C1777 C1778 C1779 C1780 C1781 C1782 C1783 C1784 C1785 C1786 C1787 C1788 C1789 C1790 C1791 C1792 C1793 C1794 C1795 C1796 C1797 C1798 C1799 C1800 C1801 C1802 C1803 C1804 C1805 C1806 C1807 C1808 C1809 C1810 C1811 C1812 C1813 C1814 C1815 C1816 C1817 C1818 C1819 C1820 C1821 C1822 C1823 C1824 C1825 C1826 C1827 C1828 C1829 C1830 C1831 C1832 C1833 C1834 C1835 C1836 C1837 C1838 C1839 C1840 C1841 C1842 C1843 C1844 C1845 C1846 C1847 C1848 C1849 C1850 C1851 C1852 C1853 C1854 C1855 C1856 C1857 C1858 C1859 C1860 C1861 C1862 C1863 C1864 C1865 C1866 C1867 C1868 C1869 C1870 C1871 C1872 C1873 C1874 C1875 C1876 C1877 C1878 C1879 C1880 C1881 C1882 C1883 C1884 C1885 C1886 C1887 C1888 C1889 C1890 C1891 C1892 C1893 C1894 C1895 C1896 C1897 C1898 C1899 C1900 C1901 C1902 C1903 C1904 C1905 C1906 C1907 C1908 C1909 C1910 C1911 C1912 C1913 C1914 C1915 C1916 C1917 C1918 C1919 C1920 C1921 C1922 C1923 C1924 C1925 C1926 C1927 C1928 C1929 C1930 C1931 C1932 C1933 C1934 C1935 C1936 C1937 C1938 C1939 C1940 C1941 C1942 C1943 C1944 C1945 C1946 C1947 C1948 C1949 C1950 C1951 C1952 C1953 C1954 C1955 C1956 C1957 C1958 C1959 C1960 C1961 C1962 C1963 C1964 C1965 C1966 C1967 C1968 C1969 C1970 C1971 C1972 C1973 C1974 C1975 C1976 C1977 C1978 C1979 C1980 C1981 C1982 C1983 C1984 C1985 C1986 C1987 C1988 C1989 C1990 C1991 C1992 C1993 C1994 C1995 C1996 C1997 C1998 C1999 C2000 C2001 C2002 C20																			

TABLE 11. - Continued.

TEST: OA 110		NAAL 721		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 3-22-74	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES						NO. OF RUNS	MACH NUMBERS		TEST RUN NUMBERS		
		α	β	ϕ	δ_F	δ_a	δ_e	δ_r	δ_{SR}						
RF5055	$B_0, C_{11}, F_{12}, M_{15}, W_{12}, E_{40}, V_{20}, R_{15}, X_{19}$	10	C	0	-11.7	0	0	-20	25			20			
056		10	C					0				55			
057		A	O									56			
058	W_{125}	A	O									57			
059		10	C									58			
060	$B_0, C_{11}, F_{12}, M_{15}, W_{12}, E_{40}, V_{20}, R_{15}, X_{19}$											59			
061								-10				60			
062								-20				61			
063								-25				62			
064								-25	0			63			
065								-20				64			
066								-10				65			
067								-10				66			
068								0				67			
069												68			
070	V_{10}, R_{15}, X_{19}	O	E						25			69			
071		20										70			
072		25										71			
												72			
COEFFICIENTS															
$\alpha(A) = -4, -2, -1, 0, +1, +2 \rightarrow 30, \Delta\alpha = 2^\circ$															
$\beta(C) = -14 \rightarrow +14, \Delta\beta = 2^\circ$															
$\beta(E) = 0 \rightarrow +20, \Delta\beta = 2^\circ$															
SCHEDULES															
1	7	13	19	25	31	37	43	49	55	61	67	75	76		
C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17		
ALPHA															
BETA															
MACH															
DOVAR (1)															
DOVAR (2)															
DOVAR (3)															
DOVAR (4)															
DOVAR (5)															
DOVAR (6)															
DOVAR (7)															
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DOVAR (97)															
DOVAR (98)															
DOVAR (99)															
DOVAR (100)															

TABLE II. - Concluded.

TEST: OA110		NAAL 721		DATA SET RUN NUMBER COLLATION SUMMARY														DATE 3-22-74																				
DATA SET IDENTIFIER		CONFIGURATION		SCHD.		PARAMETERS/VALUES										NO. OF RUNS		MACH NUMBERS		TEST RUN NUMBERS																		
				α	β	δF	δe	δR	δ_{38}																													
RF5073		B ₀ , C ₁₁ , F ₂ , M ₅ , W ₁₀ , E ₀ , V ₀ , R ₀ , X ₀		30	E	0	-11.7	0	0	25											1	72	73															
074				0	E	+90																	74															
075				H	O																		75															
076				G	O																			76														
077				30	F																		77															
078				35																			78															
079				40																			79															
080				50																			80															
081				60																			81															
082				70																			82															
083				80																			83															
084				A	O																		84															
085				10	C																			85														

* DATASETS RF5070 THROUGH RF5075 WERE NOT AVAILABLE TO DMS FOR PROCESSING

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B₆₁

GENERAL DESCRIPTION : -140A/B inner mold line orbiter fuselage.

MODEL SCALE: 0.0405

DRAWING NUMBER VL70-000233, SS-A01185

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (Nose @ $X_0 = 238.0$) - In.	<u>1291.30</u>	<u>52.257</u>
Max Width ($X_0 = 1516.8$) - In.	<u>260.69</u>	<u>10.558</u>
Max Depth ($X_0 = 1464.8$) - In.	<u>246.91</u>	<u>10.000</u>
Fineness Ratio	<u>4.95</u>	<u>4.95</u>
Area	<u></u>	<u></u>
Max. Cross-Sectional-Ft ²	<u>338.67</u>	<u>0.556</u>
Planform	<u></u>	<u></u>
Wetted	<u></u>	<u></u>
Base - Ft ²	<u>338.67</u>	<u>0.556</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : CANOPY C₁₁

GENERAL DESCRIPTION -140A/B inner mold line orbiter canopy used
with B₀₁. Has six window panels, three per side

MODEL SCALE: 0:0405

DRAWING NUMBER VL70-000233; SS-A01185

DIMENSIONS .	FULL SCALE	MODEL SCALE
Length (To fwd bulkhead)	<u>206.67</u>	<u>8.37</u>
Max Width (at fwd bulkhead)	<u>210.86</u>	<u>8.54</u>
Max Depth	<u> </u>	<u> </u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELEVON - E₄₀GENERAL DESCRIPTION: -140A/B inner mold line orbiter elevon used onWing 124. Includes baseline "Grumman" gaps. Hingeline is sealed on
upper and lower surface.MODEL SCALE: 0.0405DRAWING NUMBER: VL70-000233, SS-A01186

<u>DIMENSIONS:</u> (Data for 1 of 2 sides)	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft ²	<u>205.98</u>	<u>0.338</u>
Span (equivalent) In.	<u>344.20</u>	<u>13.940</u>
Inb'd equivalent chord - In.	<u>116.79</u>	<u>4.730</u>
Outb'd equivalent chord - In.	<u>55.56</u>	<u>2.250</u>
Hingeline @ F.S. - In.	<u>1387.00</u>	<u>56.174</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord ($\gamma_o=120.84$)	<u>0.214</u>	<u>0.214</u>
At Outb'd equiv. chord ($\gamma_o=468.34$)	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.000</u>	<u>0.000</u>
Trailing Edge	<u>-10.056</u>	<u>-10.056</u>
Hingeline	<u>0.000</u>	<u>0.000</u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELEVON - E₄₁

GENERAL DESCRIPTION: -140A/B inner mold line orbiter elevon used on
Wing 124, includes baseline "Grumman" gaps. Hingeline is sealed on lower
surface only.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000233; SS-A01186

<u>DIMENSIONS:</u> (Data for 1 of 2 sides)	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft ²	<u>205.98</u>	<u>0.338</u>
Span (equivalent) In.	<u>344.20</u>	<u>13.940</u>
Inb'd equivalent chord - In.	<u>116.79</u>	<u>4.730</u>
Outb'd equivalent chord - In.	<u>55.56</u>	<u>2.250</u>
Hingeline @ F.S. - In.	<u>1387.00</u>	<u>56.174</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord ($\gamma_o = 120.84$)	<u>0.214</u>	<u>0.214</u>
At Outb'd equiv. chord ($\gamma_o = 468.34$)	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.000</u>	<u>0.000</u>
Trailing Edge	<u>- 10.056</u>	<u>- 10.056</u>
Hingeline	<u>0.000</u>	<u>0.000</u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELEVON - E₄₂

GENERAL DESCRIPTION: -140 A/B inner mold line orbiter elevon used on
Wing-24. Includes baseline "Grumman" gaps. Lower and upper surface
hingeline seals are removed.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000233; SS-A00186.

<u>DIMENSIONS:</u> (Data for 1 of 2 sides)	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area Ft ²	<u>205.98</u>	<u>0.338</u>
Span (equivalent) - In.	<u>344.20</u>	<u>13.940</u>
Inb'd equivalent chord - In.	<u>116.79</u>	<u>4.730</u>
Outb'd equivalent chord - In.	<u>55.56</u>	<u>2.250</u>
Hingeline @ F.S. - In.	<u>1387.00</u>	<u>56.174</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord ($x_0 = 120.84$)	<u>0.214</u>	<u>0.214</u>
At Outb'd equiv. chord ($x_0 = 468.34$)	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.000</u>	<u>0.000</u>
Trailing Edge	<u>-10.056</u>	<u>-10.056</u>
Hingeline	<u>0.000</u>	<u>0.000</u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT BODY FLAP - F₁₂

GENERAL DESCRIPTION -140A/B inner mold line orbiter body flap
used with Body B₆₁. Dimensions are for outer mold line.

MODEL SCALE: 0.0405

DRAWING NUMBER VL70-000233; SS-A01185

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (Chord) - In.	<u>81.00</u>	<u>3.280</u>
Max Width (Span) - In.	<u>260.00</u>	<u>10.530</u>
Max Depth - In.	<u>21.20</u>	<u>0.859</u>
Hingeline @ F.S. - In.	<u>1532.00</u>	<u>62.046</u>
Fineness Ratio	<u> </u>	<u> </u>
Area - Ft ²	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u>135.00</u>	<u>0.2214</u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : ORBITAL MANEUVERING SYSTEM PODS - M₅₁
 GENERAL DESCRIPTION -140A/B inner M.L. orbiter OMS pods used
with Body B₆₁ Dimensions are based on outer moldline

 MODEL SCALE: 0.0405
 DRAWING NUMBER VL70-000233; SS-A01185

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (Fwd. Sta. @ $X_0 = 1207$) -In.	<u>304.00</u>	<u>12.312</u>
Max Width	<u> </u>	<u> </u>
Max Depth	<u> </u>	<u> </u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base (per pod)	<u>19.48</u>	<u>0.032</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: RUDDER R₁₅

GENERAL DESCRIPTION: Inner moldline orbiter rudder used with Vertical
Tail V₁₉. Capability also includes use as a speedbrake. Consists of an
upper and lower panel. Rudder hingeline is sealed.

MODEL SCALE: 0.0405 Dimensions are for outer moldline.

DRAWING NUMBER: VL70-000233; SS-A01187

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area , ft ²	<u>100.15</u>	<u>0.164</u>
Span (equivalent), in	<u>201.00</u>	<u>8.140</u>
Inb'd equivalent chord, in	<u>91.585</u>	<u>3.709</u>
Outb'd equivalent chord, in	<u>50.833</u>	<u>2.059</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.830</u>	<u>34.830</u>
Tailing Edge	<u>26.250</u>	<u>26.250</u>
Hingeline	<u>34.830</u>	<u>34.830</u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA- Continued.

MODEL COMPONENT: RUDDER - R₁₆

GENERAL DESCRIPTION: Inner moldline orbiter rudder used with Vertical
Tail V₁₉. Capability also includes use as a speedbrake. Upper and lower
hingeline seals are removed. Dimensions are for outer moldline.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000233; SS-A01187

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area, ft ²	<u>100.15</u>	<u>0.164</u>
Span (equivalent), in	<u>201.00</u>	<u>8.140</u>
Inb'd equivalent chord, in	<u>91.585</u>	<u>3.709</u>
Outb'd equivalent chord, in	<u>50.833</u>	<u>2.059</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.830</u>	<u>34.830</u>
Tailing Edge	<u>26.250</u>	<u>26.250</u>
Hingeline	<u>34.830</u>	<u>34.830</u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: RUDDER - R₂₇

GENERAL DESCRIPTION: inner moldline orbiter rudder used with Vertical Tail
V₁₉. Capability also includes use as a speedbrake. Seals between upper and
lower rudder segments removed. Dimensions are for outer moldline.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000233; SS-A01187.

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area, ft ²	<u>100.15</u>	<u>0.164</u>
Span (equivalent), in	<u>201.00</u>	<u>8.140</u>
Inb'd equivalent chord, in	<u>91.585</u>	<u>3.709</u>
Outb'd equivalent chord, in	<u>50.833</u>	<u>2.059</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.830</u>	<u>34.830</u>
Tailing Edge	<u>26.250</u>	<u>26.250</u>
Hingeline	<u>34.830</u>	<u>34.830</u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA- Continued.

MODEL COMPONENT: VERTICAL - V₁₉GENERAL DESCRIPTION: Inner moldline orbiter vertical tail with rudder and speedbrake capability. Dimensions are for outer moldline.MODEL SCALE: 0.0405DRAWING NUMBER: VL70-000233; SS-A01187

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
TOTAL DATA		
Area (Theo) - Ft ²		
Planform	<u>413.25</u>	<u>0.678</u>
Span (Theo) - In.	<u>315.72</u>	<u>12.787</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep-Back Angles, Degrees.		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>25.947</u>	<u>25.947</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root-(Theo) WP (Z ₀ = 500 In.)	<u>268.50</u>	<u>10.874</u>
Tip (Theo) WP (Z ₀ = 815.72) In.	<u>108.47</u>	<u>4.393</u>
MAC	<u>199.81</u>	<u>8.092</u>
Fus. Sta. of .25 MAC	<u>1463.35</u>	<u>59.266</u>
W.P. of .25 MAC	<u>635.52</u>	<u>25.739</u>
B.L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading-Wedge Angle - Deg.	<u>10° Sym. 60-40 Wedge</u>	
Trailing Wedge-Angle - Deg.	<u>NR Modif.</u>	
Leading-Edge Radius		
Void Area		
Blanketed Area		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: VERTICAL - V 20

GENERAL DESCRIPTION: Inner moldline orbiter vertical tail with rudder and speedbrake capability, except for leading edge modification. Dimensions are for outer moldline.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000233; SS-A01187

DIMENSIONS:	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft ²		
Planform	<u>413.25</u>	<u>0.678</u>
Span (Theo) - In.	<u>315.72</u>	<u>12.787</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep-Back Angles, Degrees.		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>25.947</u>	<u>25.947</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords: - In.		
Root (Theo) WP (Z ₀ = 500 In.)	<u>268.50</u>	<u>10.874</u>
Tip (Theo) WP (Z = 815.72) In.	<u>108.47</u>	<u>4.393</u>
MAC	<u>199.81</u>	<u>8.092</u>
Fus. Sta. of .25 MAC	<u>1463.35</u>	<u>59.266</u>
W.P. of .25 MAC	<u>635.52</u>	<u>25.739</u>
B.L. of .25 MAC	<u>0.0</u>	<u>0.0</u>
Airfoil Section		
Leading Wedge Angle - Deg.	<u>10° Sym. 60-40 Wedge</u>	
Trailing Wedge Angle - Deg.	<u>NR Mod.</u>	
Leading Edge Radius		
Void Area		
Blanketed Area		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: VERTICAL - V₂₁

GENERAL DESCRIPTION: Inner moldline orbiter vertical tail with rudder and speedbrake capability, except vertical tail base is plugged between speedbrake panels. Dimensions are for outer moldline.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000233; SS-A01187

DIMENSIONS: FULL SCALE MODEL SCALE

TOTAL DATA

Area (Theo) - Ft ²		
Planform	<u>413.25</u>	<u>0.678</u>
Span (Theo) - In.	<u>315.72</u>	<u>12.787</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep-Back Angles, Degrees.		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>25.947</u>	<u>25.947</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root (Theo) WP (Z ₀ = 500 In.)	<u>268.50</u>	<u>10.874</u>
Tip (Theo) WP (Z ₀ = 815.72 In.)	<u>108.47</u>	<u>4.393</u>
MAC	<u>199.81</u>	<u>8.092</u>
Fus. Sta. of .25 MAC	<u>1463.35</u>	<u>59.266</u>
W.P. of .25 MAC	<u>635.52</u>	<u>25.739</u>
B.L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle Deg.	<u>10° Sym.; 60-40 Wedge</u>	
Trailing Edge Angle Deg.	<u>NR Mod.</u>	
Leading Edge Radius		
Void Area		
Blanketed Area		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: WING-WGENERAL DESCRIPTION: -140A/B inner moldline double delta orbiter wing used onBody B₆₁. Dimensions are for outer moldline.MODEL SCALE: 0.0405

TEST NO.

DWG. NO.

SS-A01186

VI.70-000233

DIMENSIONS:

FULL-SCALE

MODEL SCALE

TOTAL DATA

Area (Theo.) Ft^2

Planform

Span (Theo) In.

Aspect Ratio

Rate of Taper

Taper Ratio

Dihedral Angle, degrees

Incidence Angle, degrees

Aerodynamic Twist, degrees

Sweep Back Angles, degrees

Leading Edge

Trailing Edge

0.25 Element Line

Chords:

Root (Theo) B.P.O.O.

Tip, (Theo) B.P.

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

EXPOSED DATA

Area (Theo) Ft^2

Span, (Theo) In. BP108

Aspect Ratio

Taper Ratio

Chords

Root BP108

Tip 1.00 $\frac{b}{2}$

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

Airfoil Section (Rockwell Mod NASA)

XXXX-64

Root $\frac{b}{2} = Y_0 = 199$ Tip $\frac{b}{2} =$

Data for (1) of (2) Sides

Leading Edge Cuff Ft^2 Planform Area Ft^2

Leading Edge Intersects Fus M. L. @ Sta

Leading Edge Intersects Wing @ Sta

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: WING-W
 GENERAL DESCRIPTION: -140A/B inner moldline double delta orbiter wing used on
Body B₁, except for squared off wing tips aft of 20% element line on
upper wing surface. Dimensions are for outer moldline.

MODEL SCALE: 0.0405

TEST NO.	DWG. NO.	SS-A01186	
DIMENSIONS:	FULL-SCALE	MODEL SCALE	
<u>TOTAL DATA</u>			
Area (Theo.) Ft ²			
Planform	2690.00	4.412	
Span (Theo) In.	936.68	37.936	
Aspect Ratio	2.265	2.265	
Rate of Taper			
Taper Ratio	0.200	0.200	
Dihedral Angle, degrees	3.500	3.500	
Incidence Angle, degrees	0.500	0.500	
Aerodynamic Twist, degrees	3.000	3.000	
Sweep Back Angles, degrees			
Leading Edge	45.000	45.000	
Trailing Edge	10.056	10.056	
0.25 Element Line	35.209	35.209	
<u>Chords:</u>			
Root (Theo) B.P.O.O.	689.24	27.914	
Tip, (Theo) B.P.	137.85	5.583	
MAC	474.81	19.230	
Fus. Sta. of .25 MAC	1136.84	46.042	
W.P. of .25 MAC			
B.L. of .25 MAC	182.13	7.376	
<u>EXPOSED DATA</u>			
Area (Theo) Ft ²			
Span, (Theo) In. BP108			
Aspect Ratio			
Taper Ratio			
<u>Chords</u>			
Root BP108			
Tip 1.00 $\frac{b}{2}$			
MAC			
Fus. Sta. of .25 MAC			
W.P. of .25 MAC			
B.L. of .25 MAC			
<u>Airfoil Section (Rockwell Mod NASA)</u>			
<u>XXXX-64</u>			
Root $\frac{b}{2}$ = $Y_0 = 199$	0010 Modif.		
Tip $\frac{b}{2}$ =	0012-64 Modif.		
<u>Data for (1) of (2) Sides</u>			
Leading Edge Cuff			
Planform Area Ft ²			
Leading Edge Intersects Fus M. L. @ Sta			
Leading Edge Intersects Wing @ Sta			

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: TRANSITION GRIT - X₂₉

GENERAL DESCRIPTION: Grit composed of glass beads located aft of model nose wing and vertical tail to provide forced boundary layer transition.

Dimensions are in the streamwise direction aft of the local leading edge.

MODEL SCALE: 0.0405

DRAWING NUMBER: NONE

DIMENSIONS:

Grit Diameter - In.

Fuselage	0.0054
----------	--------

Swept surfaces	0.0076
----------------	--------

Strip width In.	0.10
-----------------	------

Location aft of Leading edge - In.	1.00
------------------------------------	------

TABLE III. - MODEL DIMENSIONAL DATA - Concluded.

MODEL COMPONENT: TRANSITION GRIT - X_{31}

GENERAL DESCRIPTION: Grit composed of glass beads located aft of model nose and wing to provide forced boundary layer transition. Dimensions are in the streamwise direction aft of the local leading edge. Same as X_{29} except vertical tail not gritted.

MODEL SCALE: 0.0405

DRAWING NUMBER: NONE

DIMENSIONS:

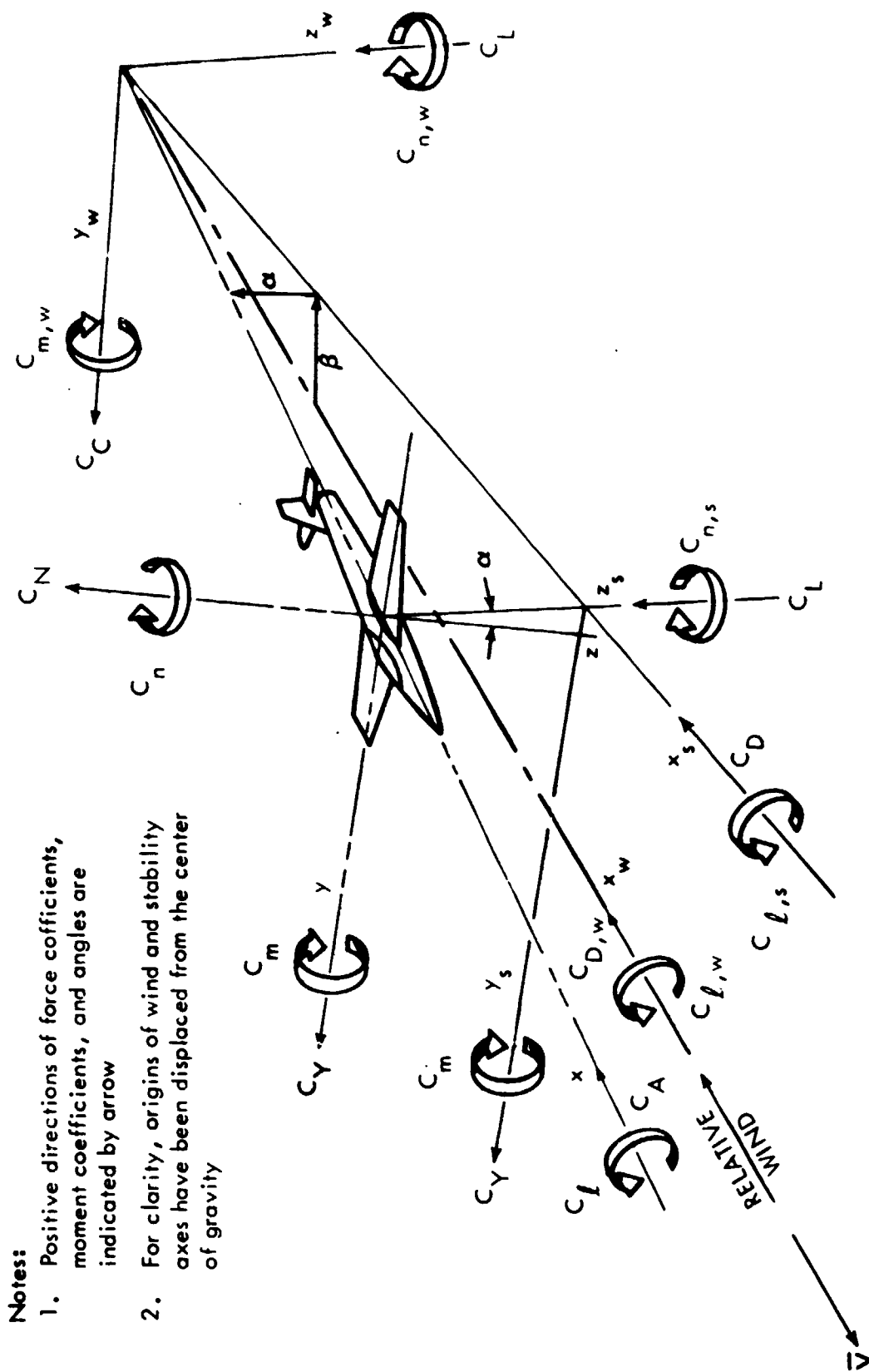
Grit diameter - In.

Fuselage	0.0054
----------	--------

Swept surfaces	0.0076
----------------	--------

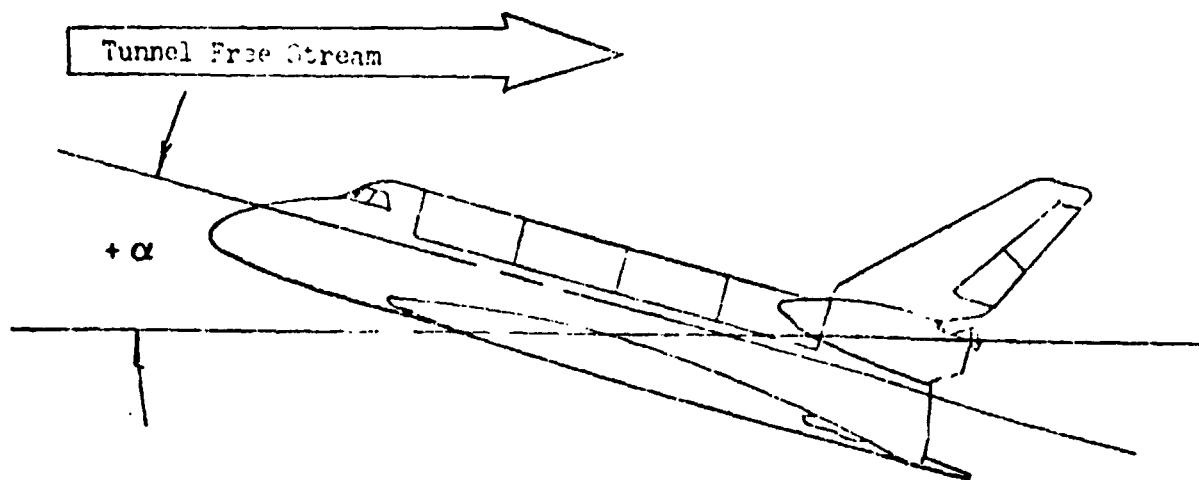
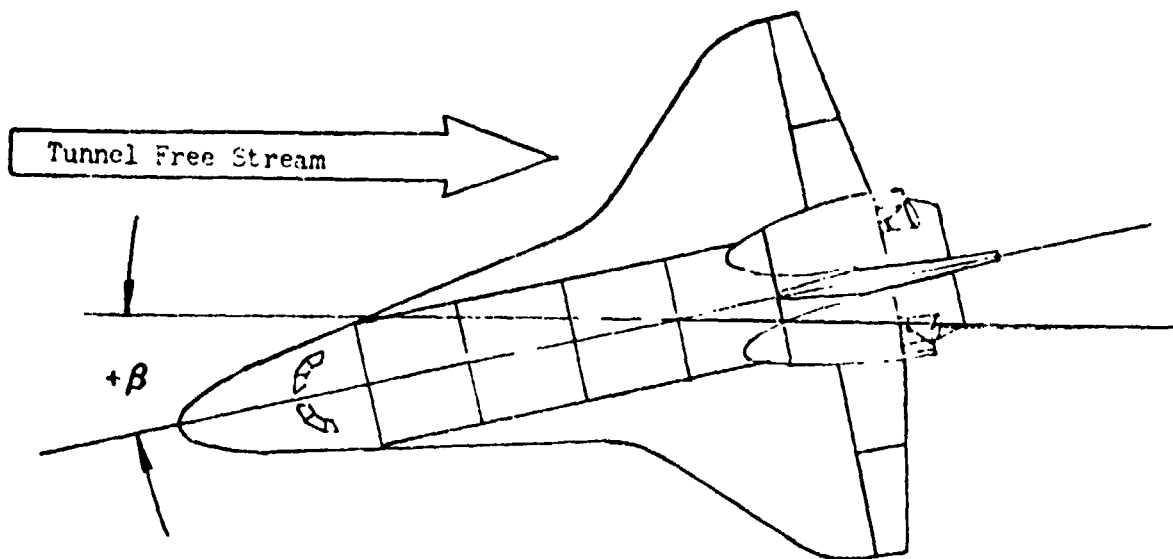
Strip width - In.	0.10
-------------------	------

Location aft of leading edge - Inc.	1.00
-------------------------------------	------



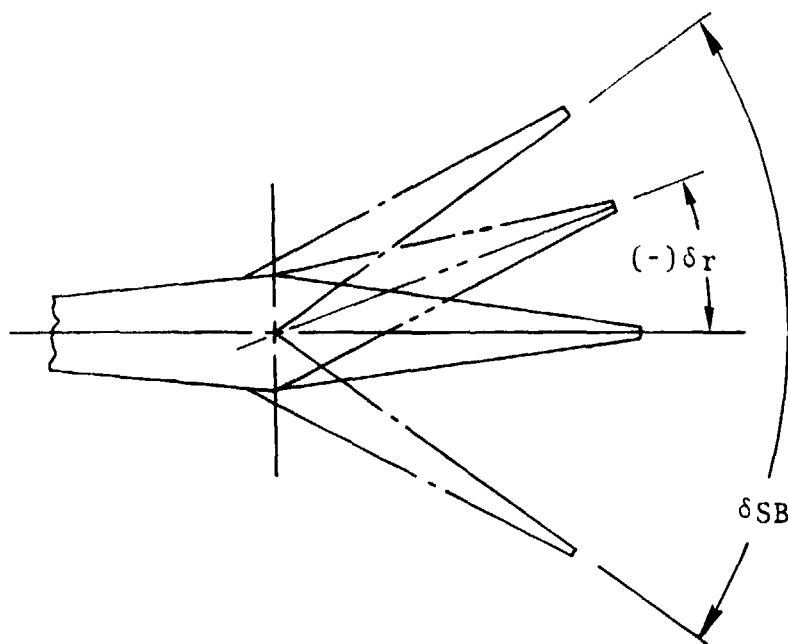
a. Body and stability axis

Figure 1. - Axis systems.

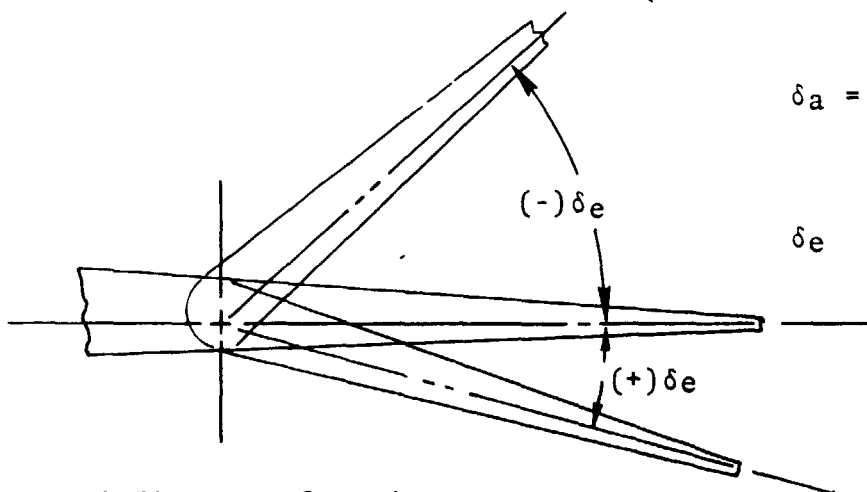


b. MODEL ATTITUDE DEFINITION

Figure 1. - Continued.



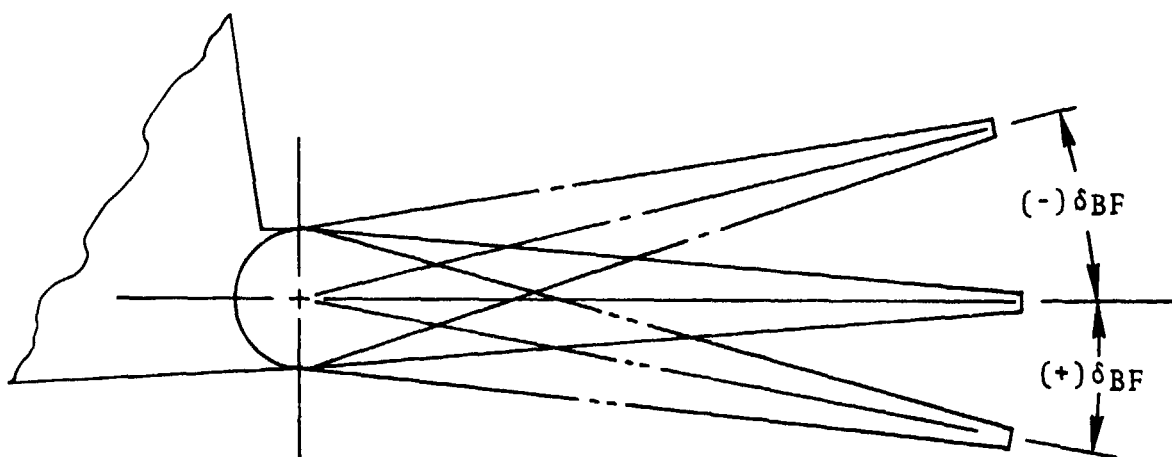
Rudder and
Speed Brake
Deflections



$$\delta_a = \frac{\delta_{eL} - \delta_{eR}}{2}$$

$$\delta_e = \frac{\delta_{eL} + \delta_{eR}}{2}$$

Aileron & Elevon Deflections

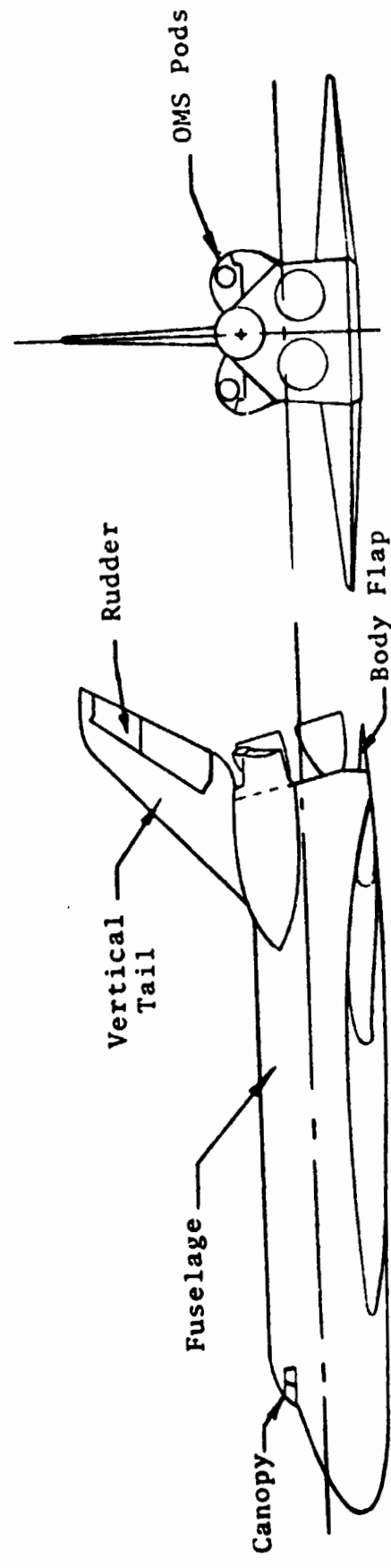
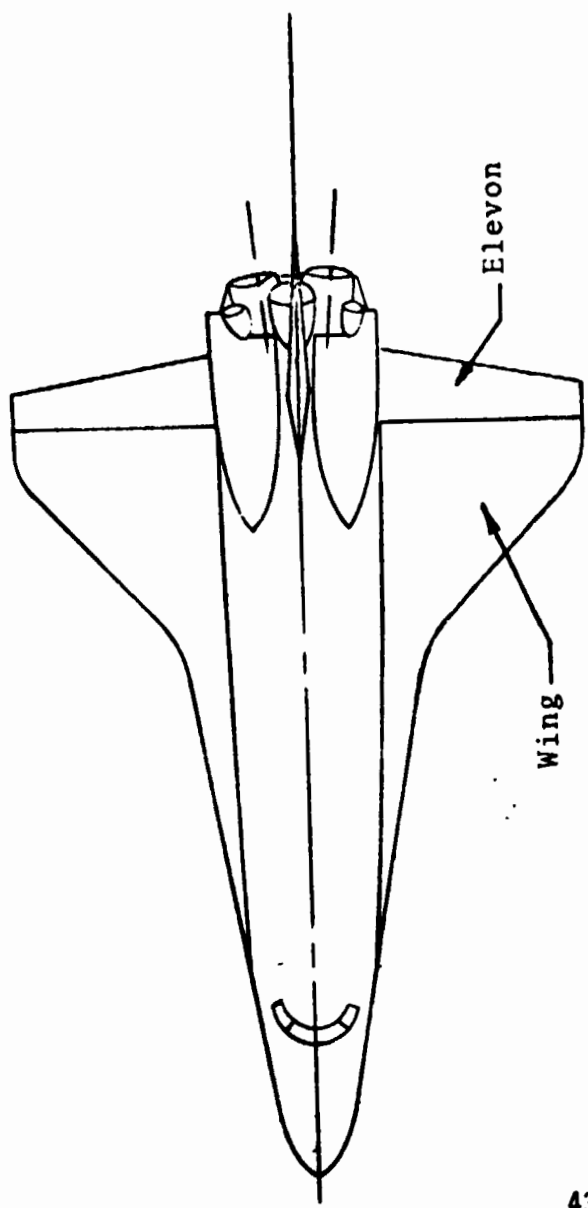


Body Flap Deflections

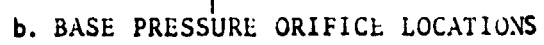
c . Sign Convention for Control Surfaces

Figure 1. - Concluded.

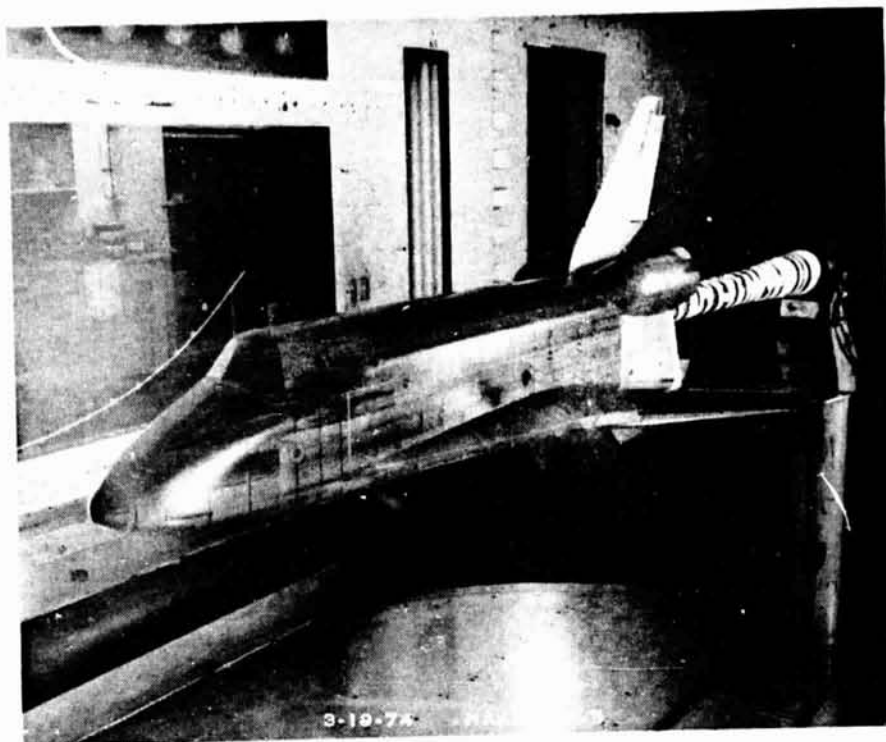
Reference	Dimension
Area	$S_w = 2690 \text{ ft}^2$
MAC	$\bar{c}_w = 474.81 \text{ in}$
C.G.	$X = 1076.70 \text{ in}$
	$Z = 375.0 \text{ in}$
Span	$b_w = 936.68 \text{ in}$
Length	$L = 1290.3 \text{ in}$



a. GENERAL ARRANGEMENT - 140A/B ORBITER
Figure 2. - Model sketches.



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REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

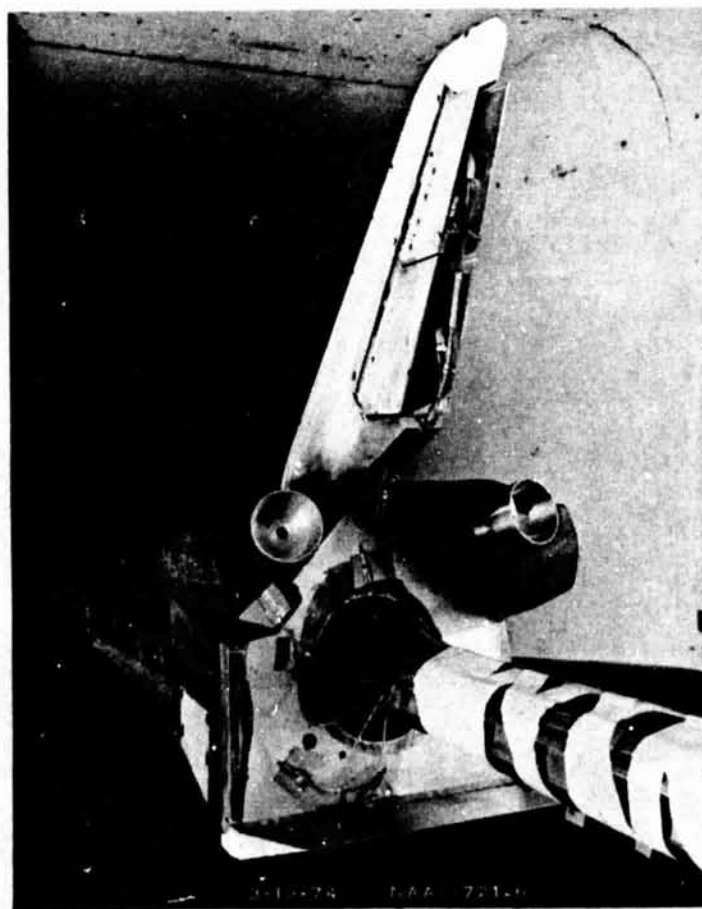


FIGURE 3. - MODEL INSTALLATION PHOTOGRAPHS.

DATA FIGURES

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EF3001} 0A110 BASIC11F12P51V124E40 X28
 {EF5011} 0A110 BASIC11F12P51V124E40V19R15025

ELEVON AILERON RUDDER SPOILER
 .000 .000 .000 25.000
 .000 .000 .000 .000
 REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2289 INCHES
 BREF 37.9359 INCHES
 XMRP 43.5974 INCHES
 YMRP 15.1875 INCHES
 ZMRP 15.1875 INCHES
 SCALE .0405

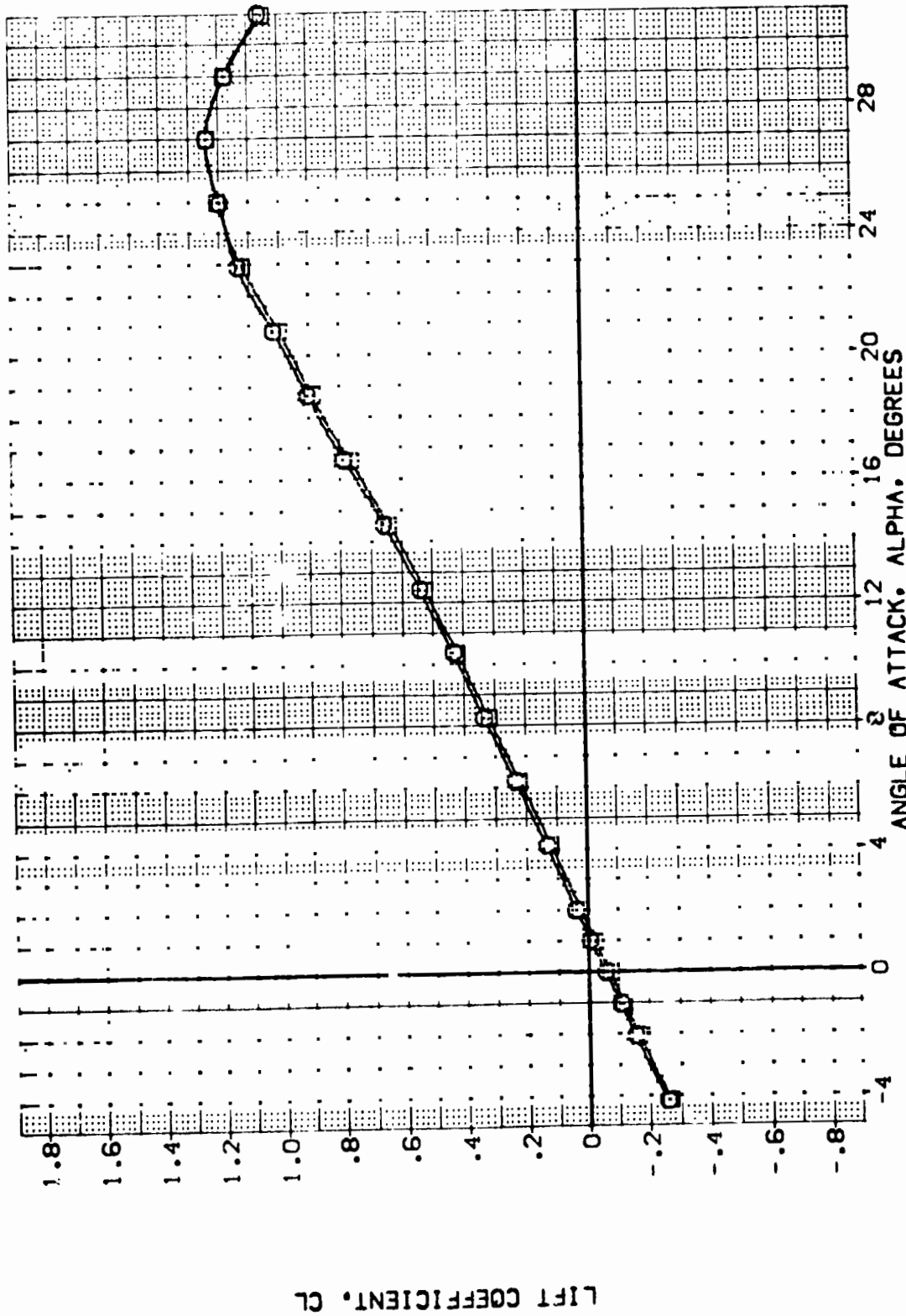


FIG 4 LONGITUDINAL STABILITY, BDFLAP = -11.7 DEG

(A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EP5001) 0110 BS1C1F12V61V124E40 X28
 (EP5011) 0110 BS1C1F12V61V124E40V19R15X28

ELEVON ALLRON RUDDER SPOILER REFERENCE INFORMATION
 SREF 4.4119 SQ.FT. SQ.FT.
 LREF 19.2299 INCHES INCHES
 BREF 37.9359 INCHES INCHES
 XMRP 43.5874 INCHES INCHES
 YMRP .0000 INCHES INCHES
 ZMRP 15.1875 INCHES INCHES
 SCALE .0405 SCALE

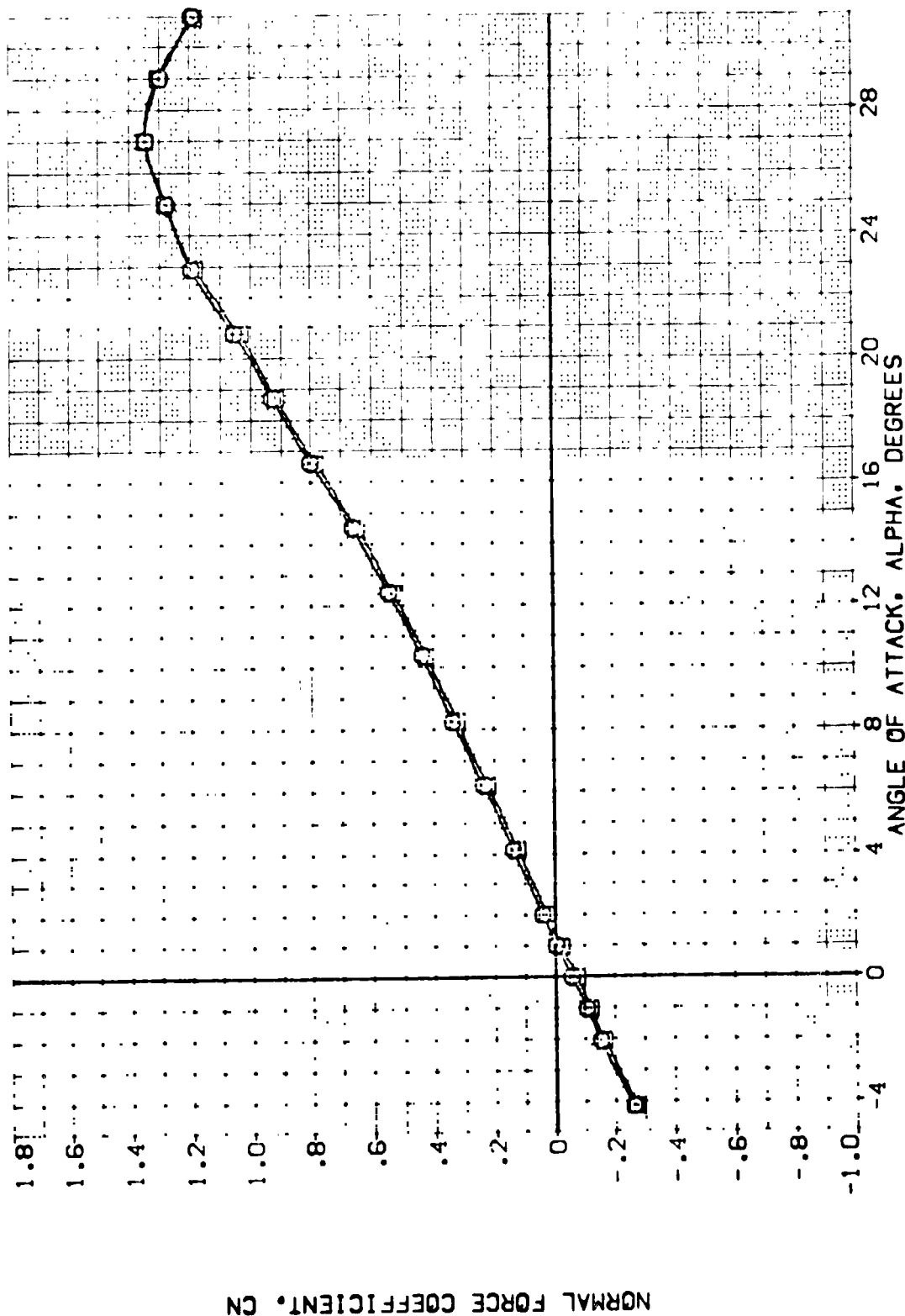


FIG 4 LONGITUDINAL STABILITY, BDFLAP = -11.7 DEG
 (A)MACH = .20

ELEVATION		AIRLON		RUDER		SPOBWK		REFERENCE INFORMATION	
.000	.000	.000	.000	.000	.000	25.000	SREF	4.4119	50. FT.
.000	.000	.000	.000	.000	.000	.000	LREF	19.2259	INCHES
.000	.000	.000	.000	.000	.000	.000	BREF	37.9359	INCHES
.000	.000	.000	.000	.000	.000	.000	XPRP	43.5674	INCHES
.000	.000	.000	.000	.000	.000	.000	YPRP	.0000	INCHES
.000	.000	.000	.000	.000	.000	.000	ZPRP	15.1875	INCHES
.000	.000	.000	.000	.000	.000	.000	SCALE	.0405	INCHES

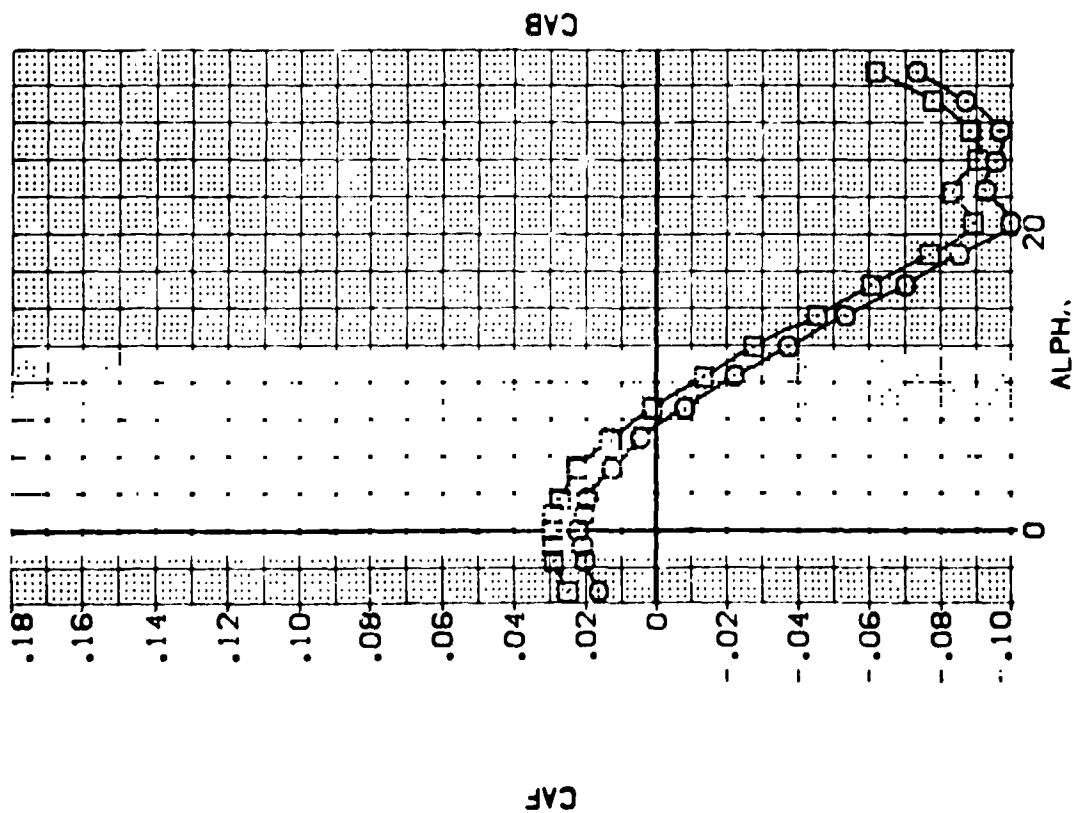


FIG 4 LONGITUDINAL STABILITY, BDFLAP = -11.7 DEG

CALMACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5001) 0110 BASIC11F12051V124E40 X29
 (EF5011) 0110 BASIC11F12051V124E40V1SR15X29

ELEVON AILRON RUDDER SP00BK
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 50.FT.
 LREF 19.2299 INCHES
 BREF 37.9359 INCHES
 YMRP 43.5974 INCHES
 ZMRP .0000 INCHES
 SCALE 15.1875 INCHES
 SCALE .0405

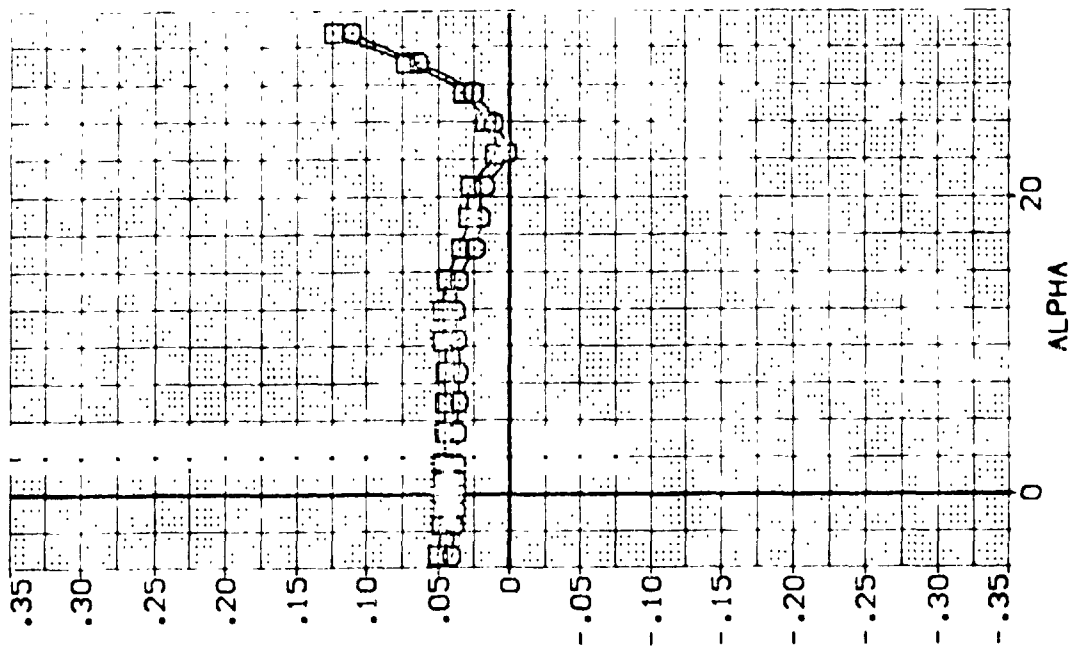
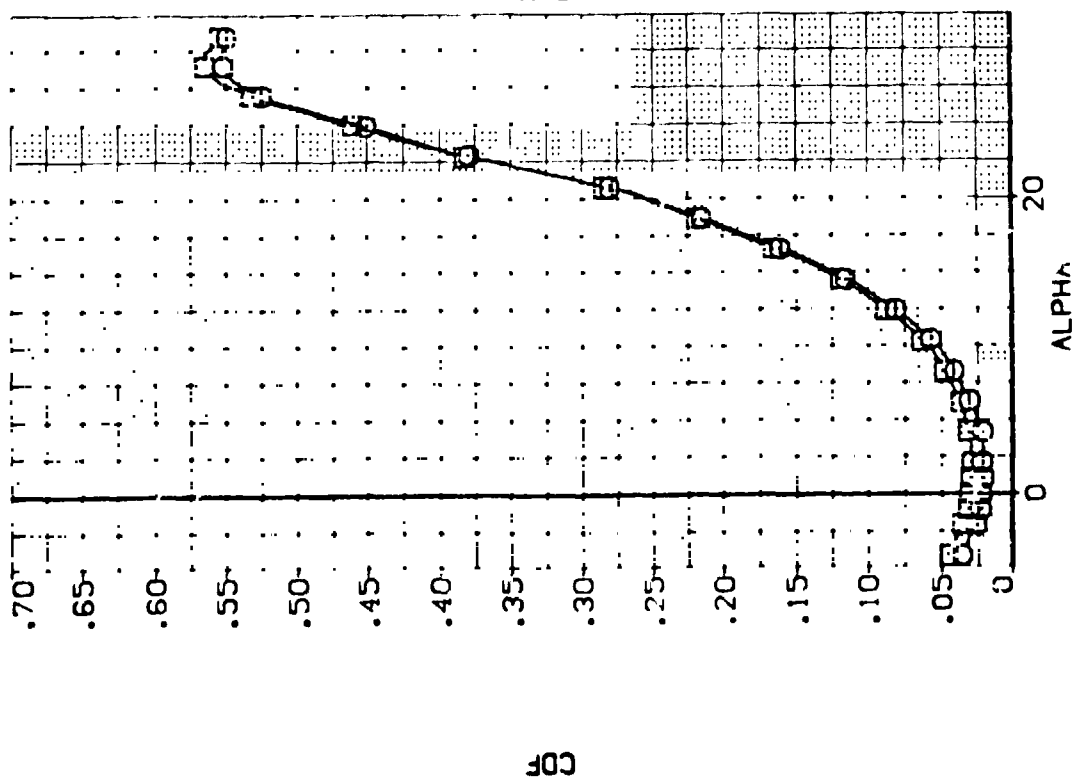


FIG 4 LONGITUDINAL STABILITY, BOFLAP = -11.7 DEG

(M)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EP5001} B BA110 BS1C11F12G1V124E40 X29
 {EP5011} B BA110 BS1C11F12G1V124E40V19R15X29

ELEVON AILERON RUDDER SPEEDK
 .000 .000 .000 25.000
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2289 INCHES
 BREF 37.5359 INCHES
 XMRP 43.5874 INCHES
 YMRP .0000 INCHES
 ZMRP 15.1875 INCHES
 SCALE .0405 SCALE

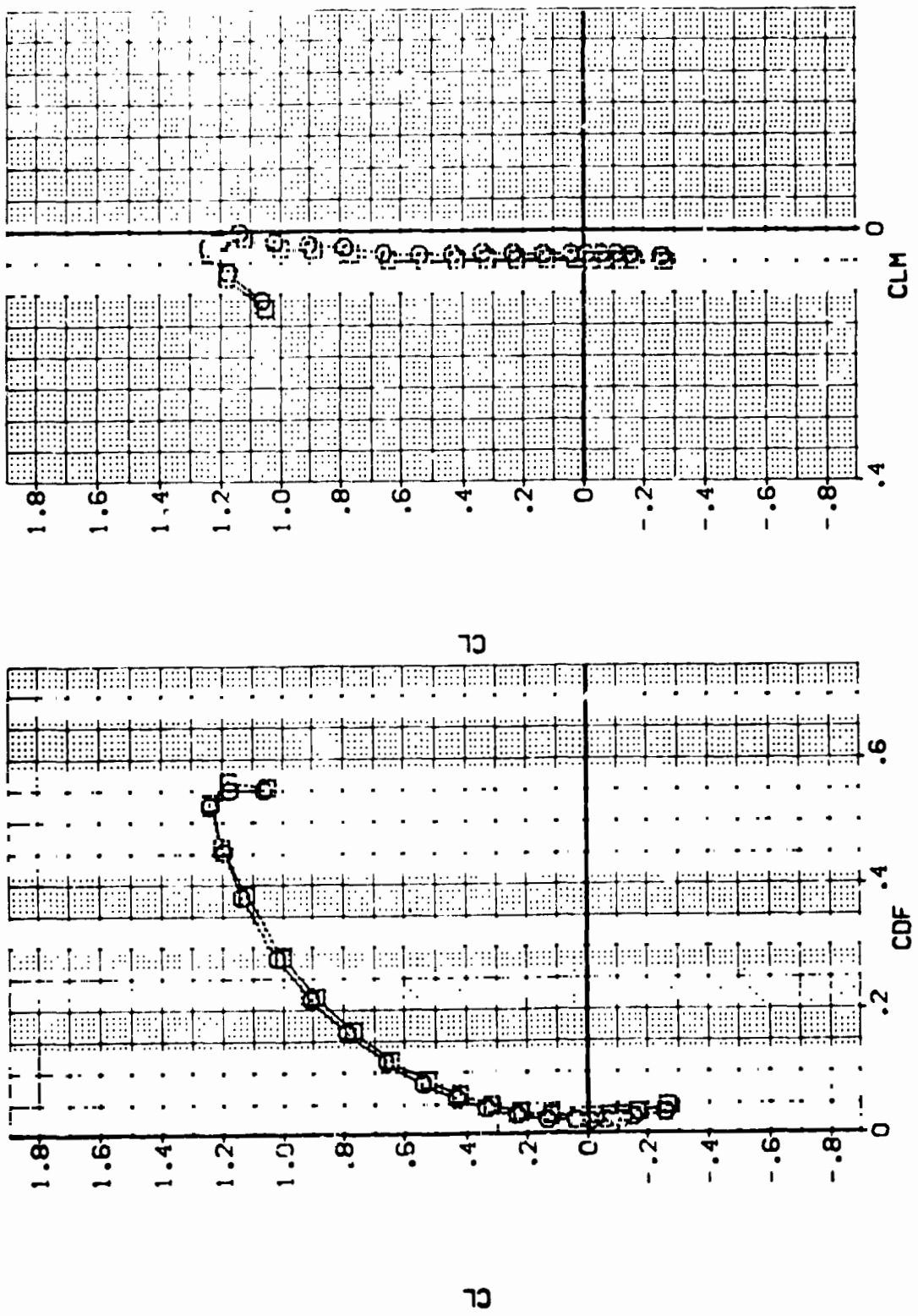


FIG 4 LONGITUDINAL STABILITY. BOFLAP = -11.7 DEG

(A)MACH = .20

DATA SET SYMBOL: (EP5001) (EP5011)
 CONFIGURATION DESCRIPTION: BASIC11F1261V124E40 X29
 BASIC11F1261V124E40V19R15X29
 ELEVON: .000 .000 .000
 AILERON: .000 .000 .000
 RUDDER: .000 .000 .000
 SPOILER: 25.000
 REFERENCE INFORMATION:
 SREF: 4.4119 SQ.FT.
 LREF: 19.2298 INCHES
 BREF: 37.9359 INCHES
 XMRP: 43.5574 INCHES
 YMRP: .0000 INCHES
 ZMRP: 15.1875 INCHES
 SCALE: .0405 SCALE

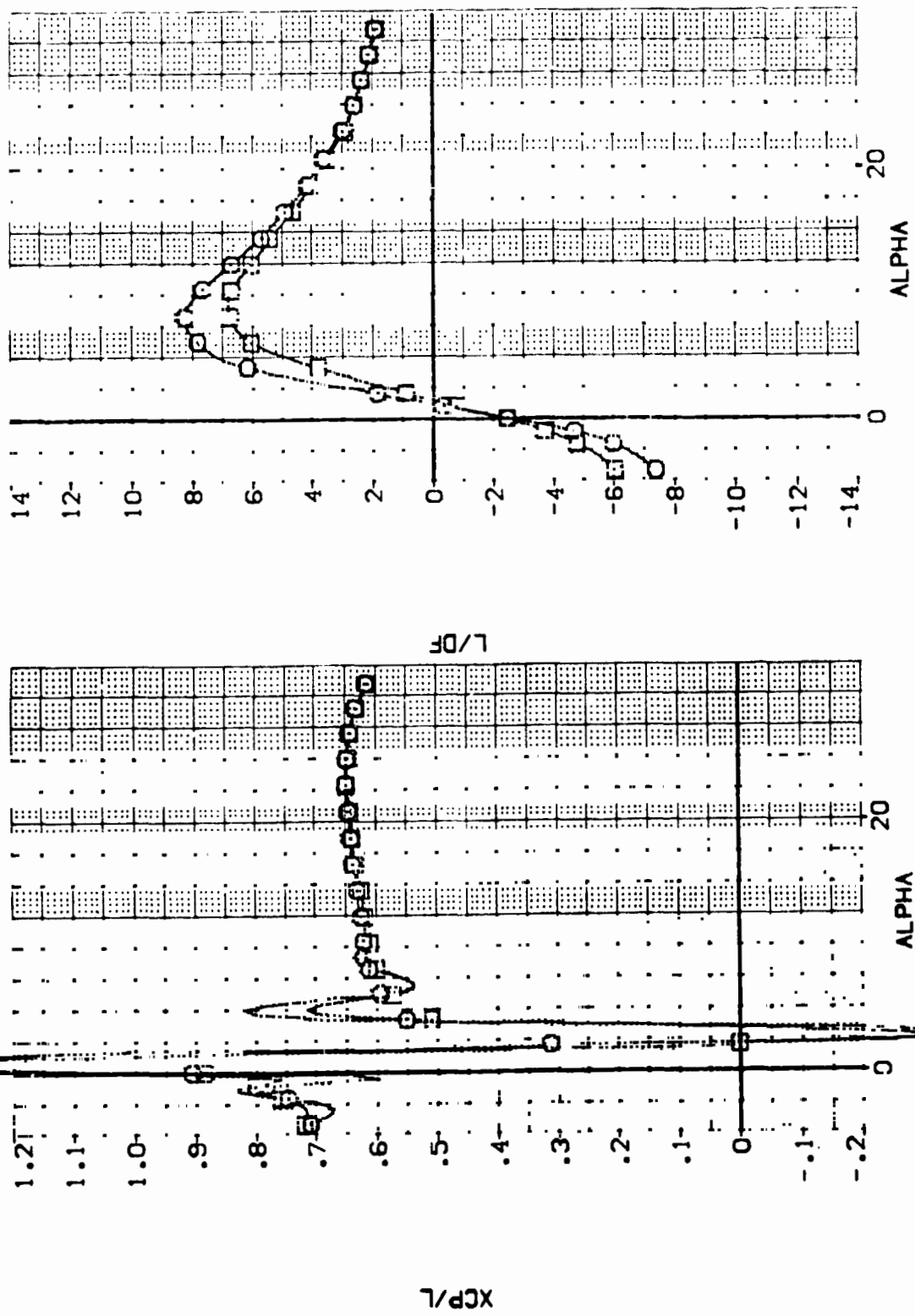


FIG 4 LONGITUDINAL STABILITY, BOFLAP = -11.7 DEG

CA/MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDER	SPOILER	AILERON	REFERENCE INFORMATION
(#5002)	0A110 BSIC11F126S1V124E40	.000			.000	SREF 4.4119 SQ.FT.
(#5003)	0A110 BSIC11F126S1V124E40	5.000			.000	LREF 19.2299 INCHES
(#5004)	0A110 BSIC11F126S1V124E40	10.000			.000	BREF 37.9359 INCHES
(#5005)	0A110 BSIC11F126S1V124E40	15.000			.000	XREF 43.5974 INCHES
(#5006)	0A110 BSIC11F126S1V124E40	20.000			.000	YREF 15.1875 INCHES
						ZREF .0405 SCALE

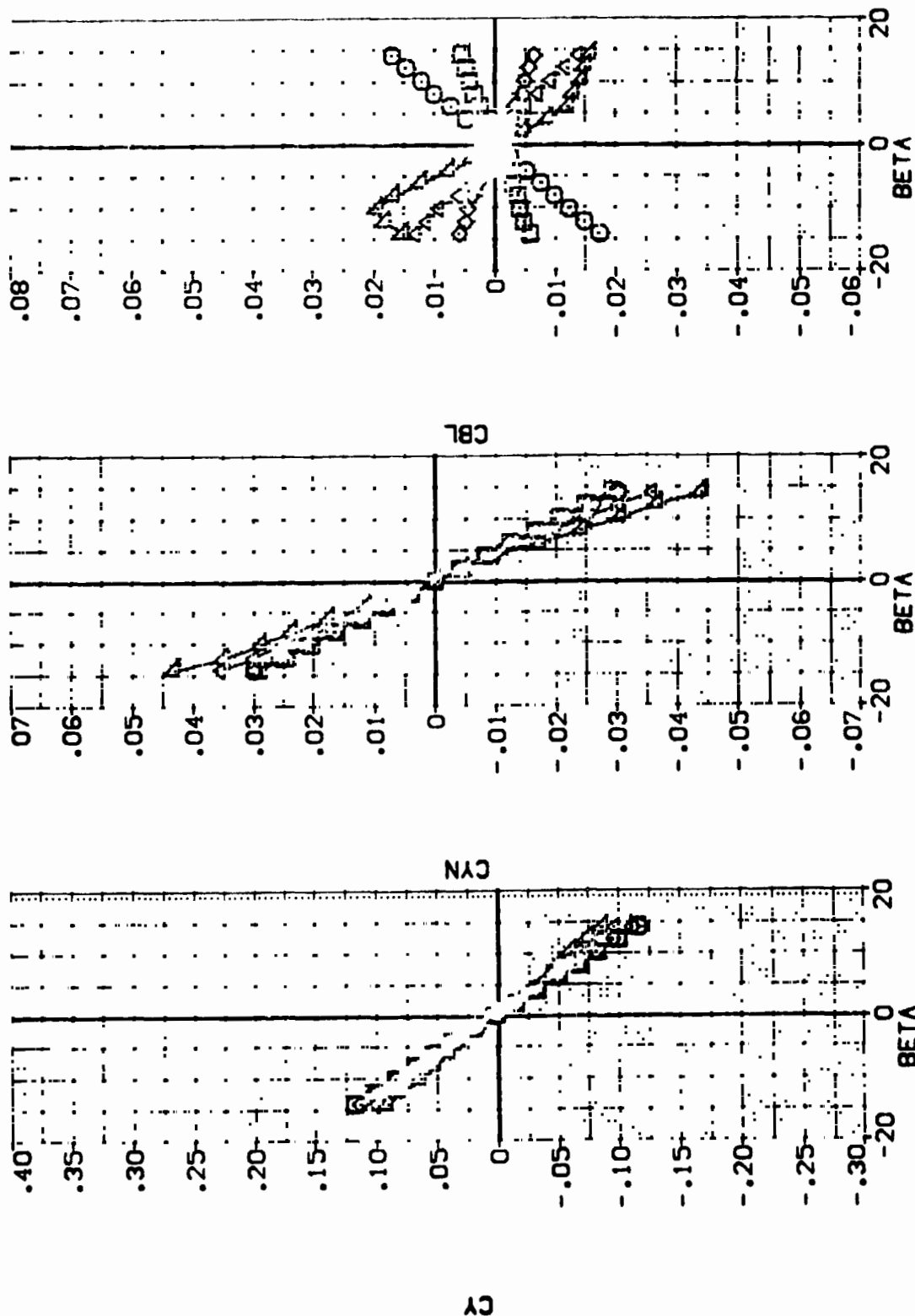


FIG 5 LATERAL-DIRECTIONAL STABILITY. VERTICAL TAIL OFF, BDFLAP = -11.7DEG

(A)MACH = .20

(AF5002)

X29

0A110 B61C11F12MS1W124E40

SYMBOL	BOFLAP	PARAMETRIC VALUES		MACH	REFERENCE INFORMATION	
		.200	ELEVON		SPKF	SCALE
○	-12.000	.000	.000	A1LRON	4.4119	SC.F.
					19.7299	SC.F.
					37.9359	SC.F.
					43.5874	SC.F.
					.0000	SC.F.
					15.1875	SC.F.
					.0405	SC.F.

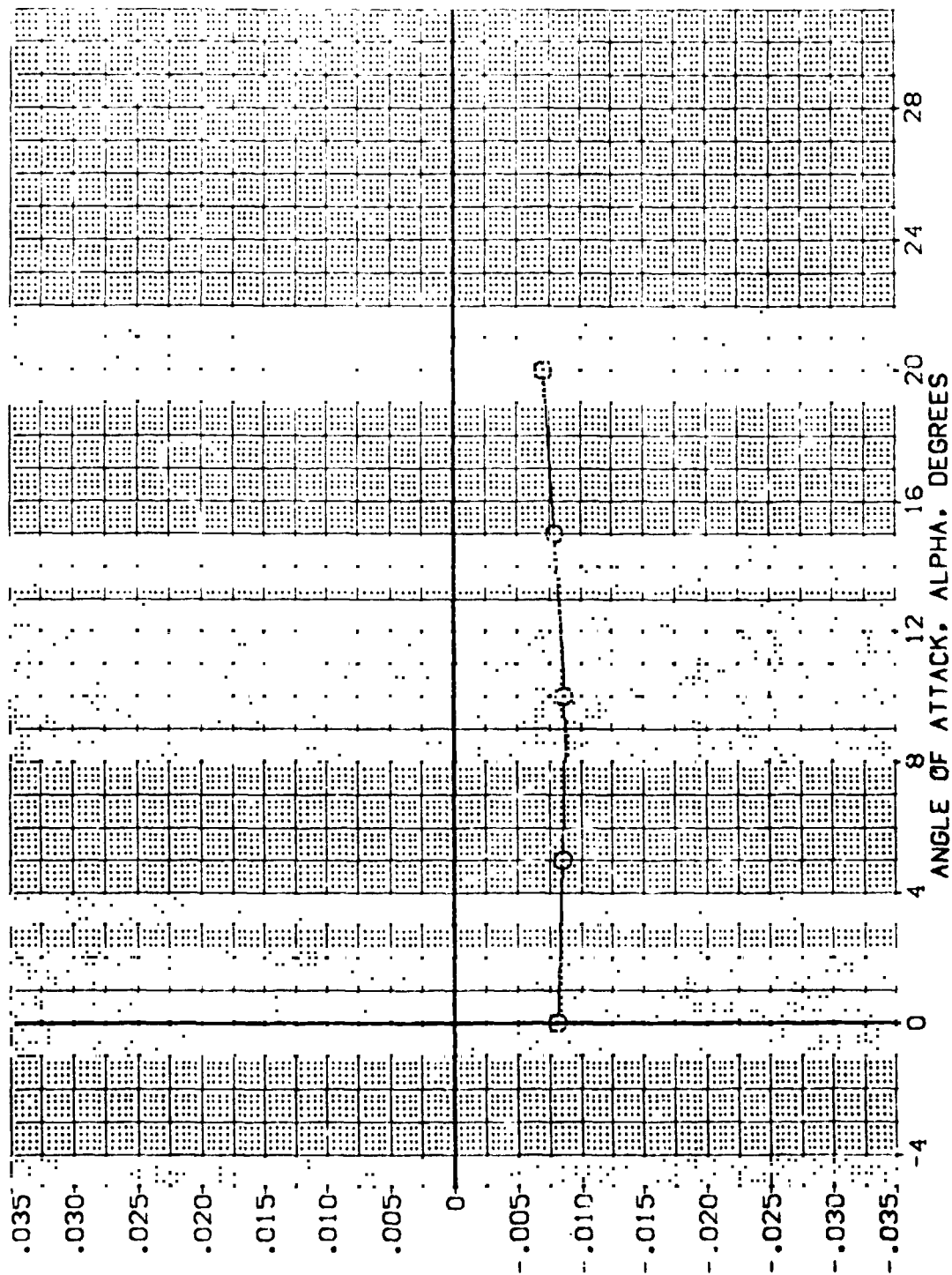


FIG 5 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL OFF, BOFLAP = -11.70DEG

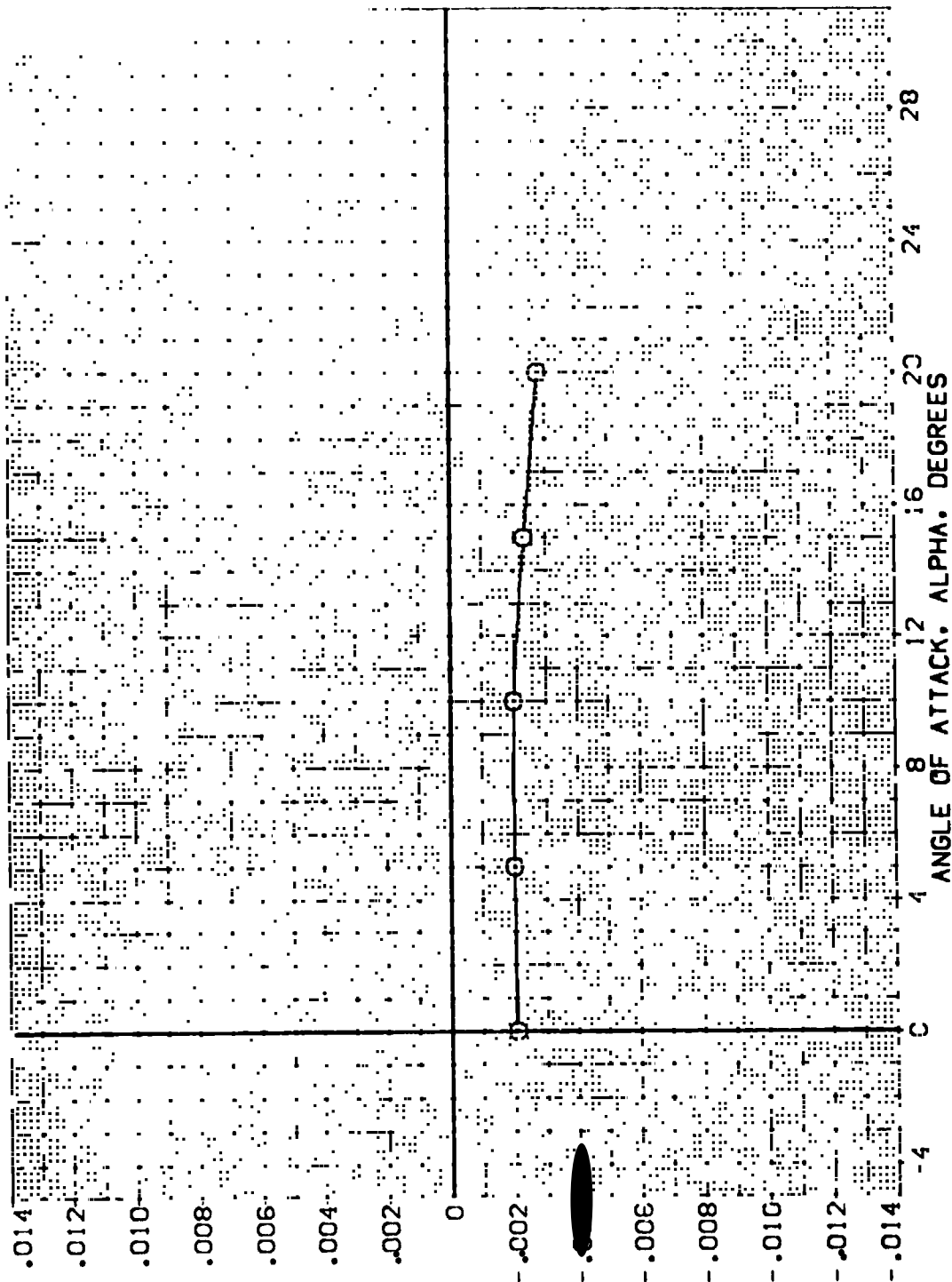
YAWING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CYNBET, PER DEGREE

(AF5002)

0A110 B61C11F12M51W124E40

X29

SYMBOL	BDFLAP	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-12.000	AILRON	.200 ELEVON .000	SREF 4.4119 SQ.FT.
				LREF 19.2289 INCHES
				BREF 37.9359 INCHES
				YMRP 43.5574 INCHES
				ZMRP 15.0000 INCHES
				SCALE .0405



6 5 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL OFF, BDFLAP = -11.7DEG

(AF5002)

X29

0A110 861C11F12M51W124E40

SYMBOL BOFLAP
O -12.000

PARAMETRIC VALUES
MACH .000
A1LRON .000
ELEVON .000

REFERENCE INFORMATION
SREF 4.4119
LREF 19.2298
BREF 37.9359
XMRP 43.5974
YMRP .0000
ZMRP 15.1875
SCALE .0405

SCALE
SQ.FT
INCHES
INCHES
INCHES
INCHES
SCALE

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBLBET, PER DEGREE

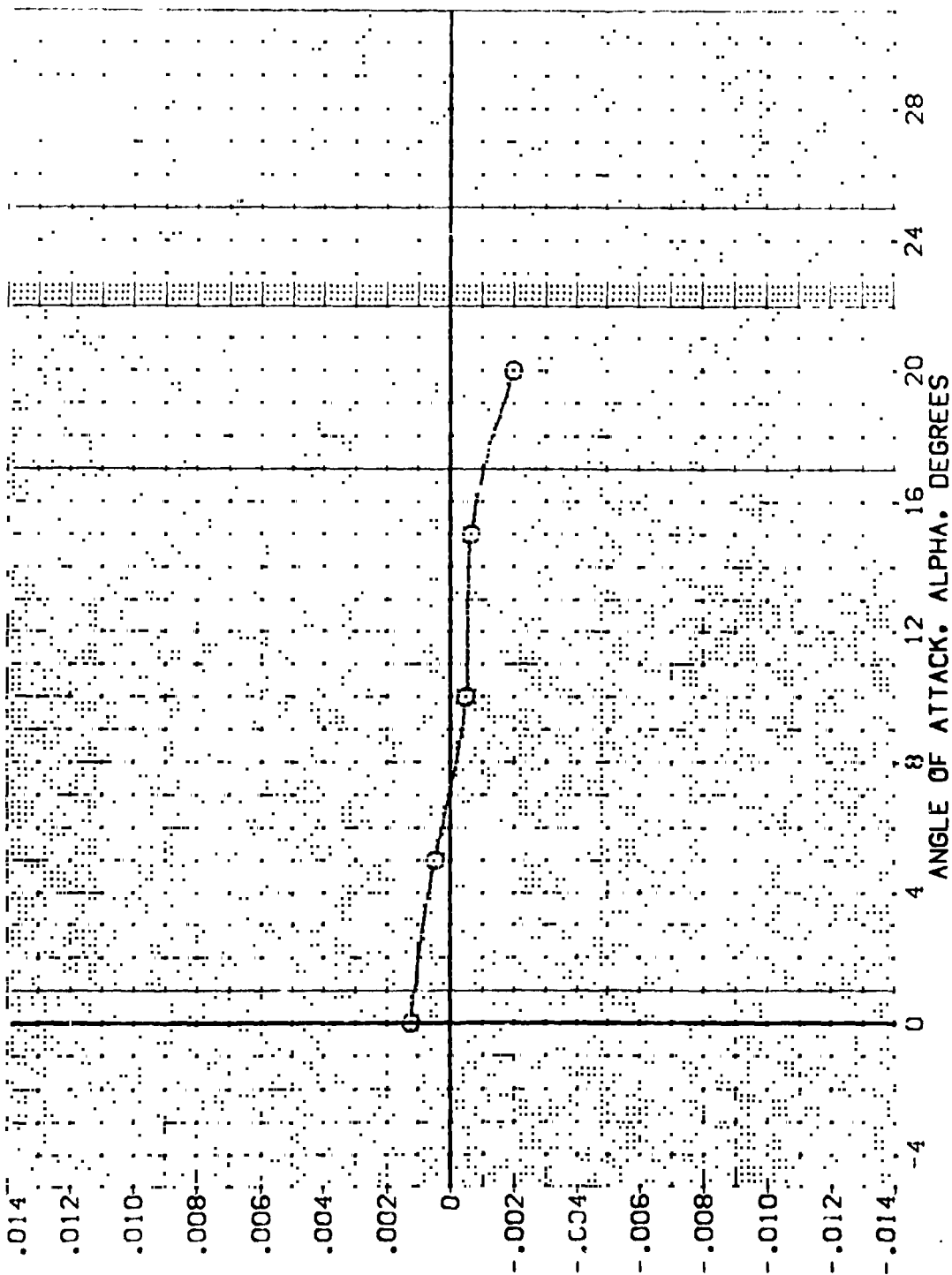


FIG 5 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL OFF, BOFLAP = -11.7DEG

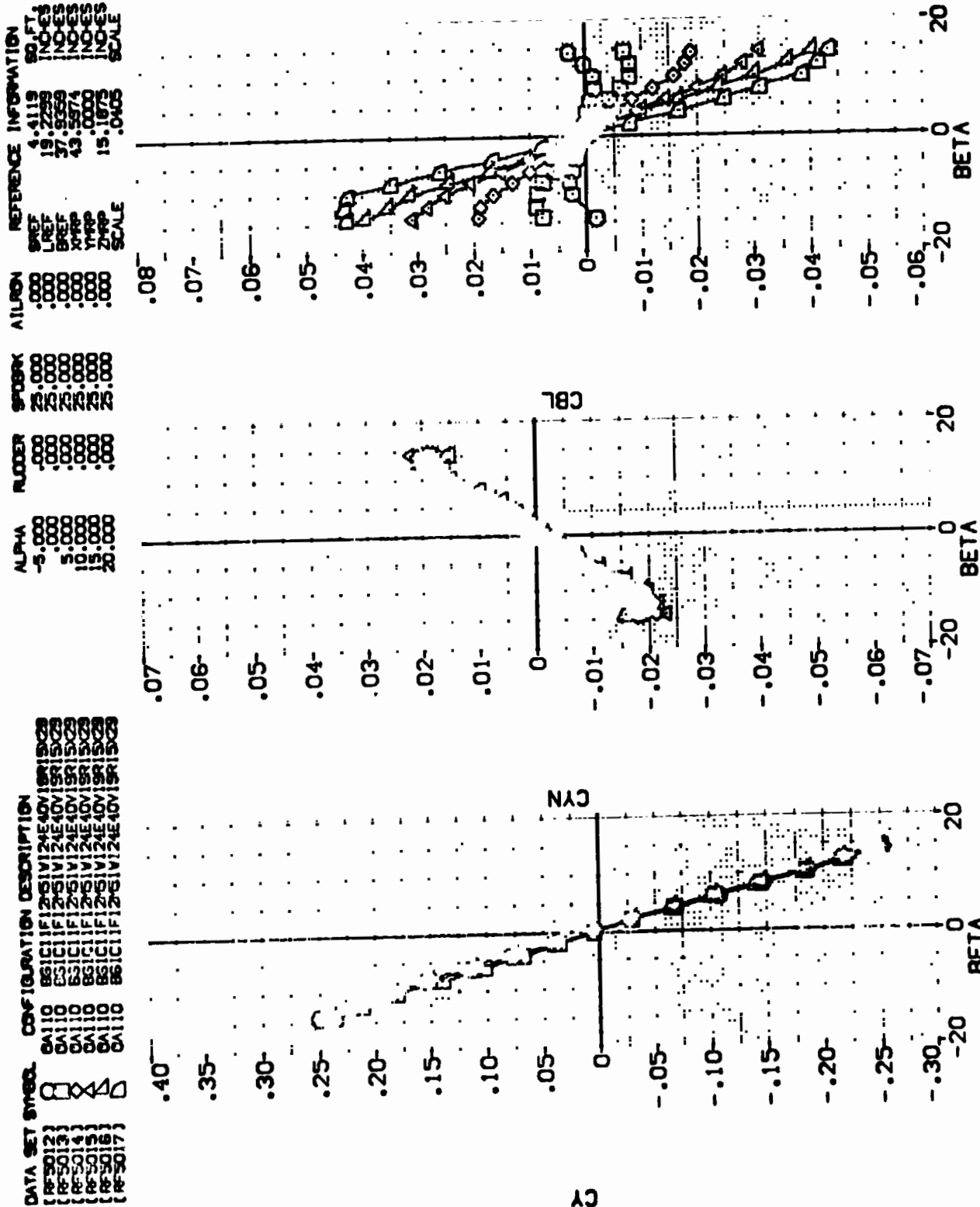


FIG 6 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL ON, BOFLAP = -11.7DEG
CAJ MACH = .20



SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

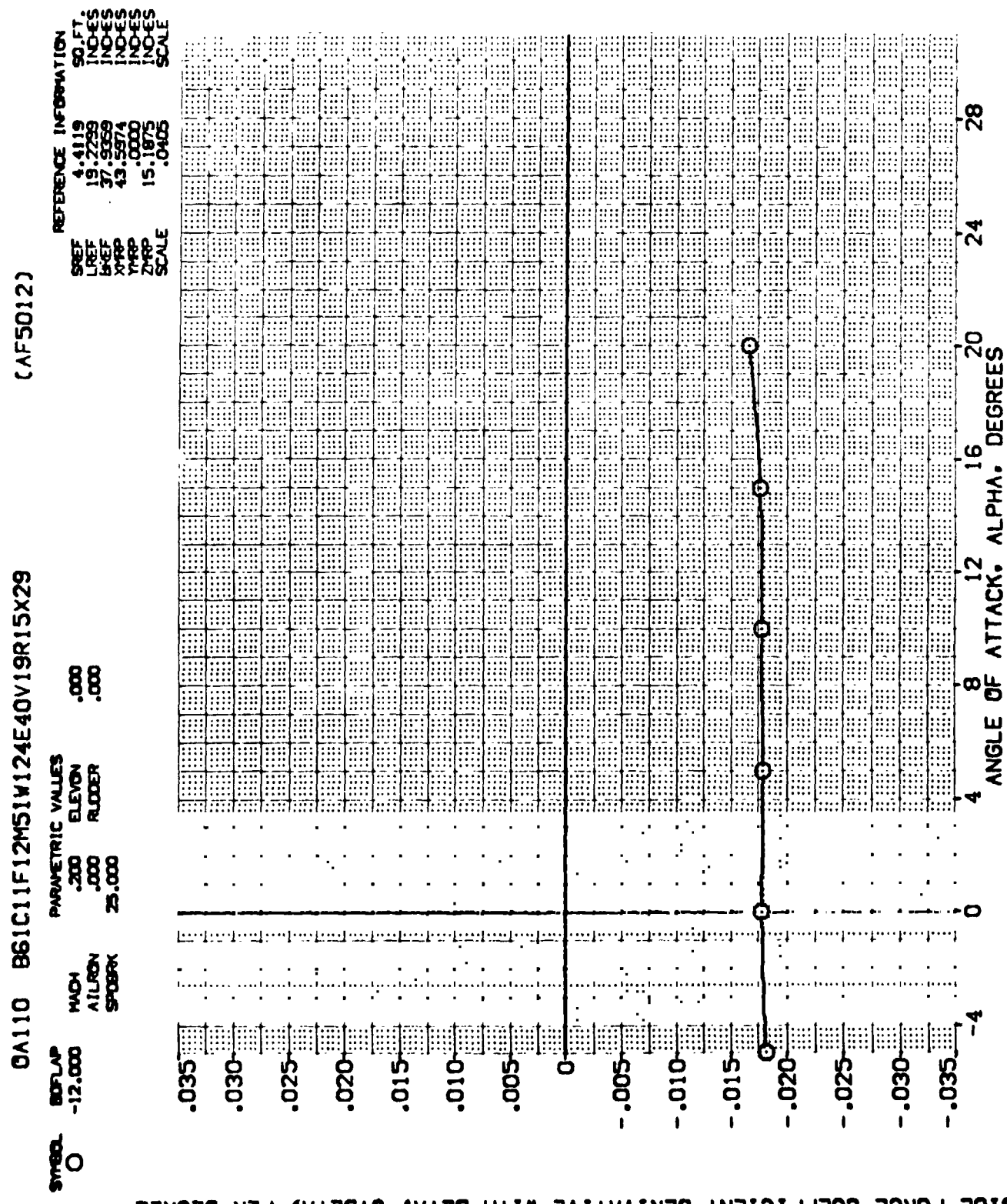


FIG 6 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL ON, BOFLAP = -11.7DEG

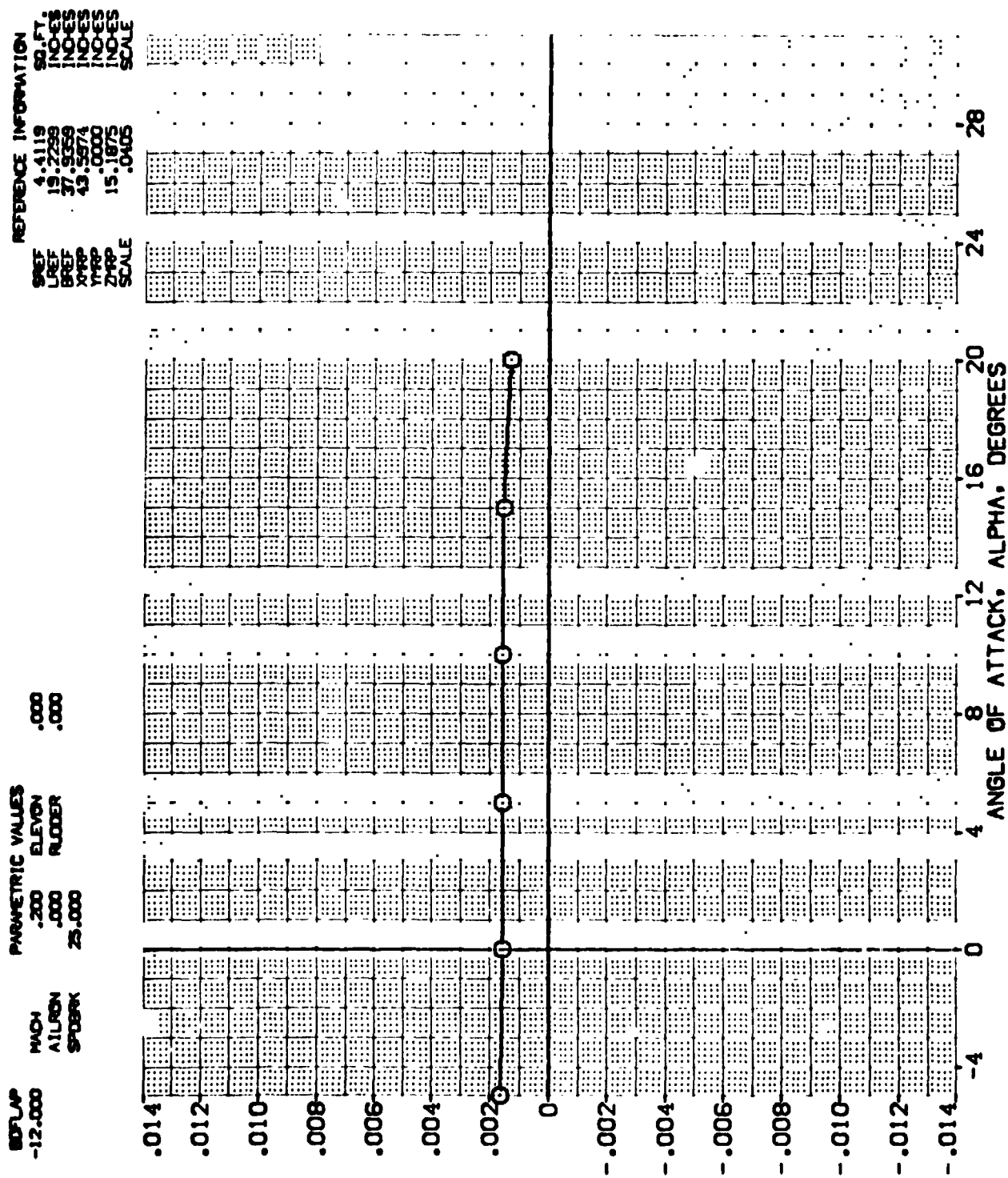
0A110 B61C11F12M51W124E40V19R15X29

(AF5012)

SYMBOL BDFLAP
O -12.000

PARAMETRIC VALUES
MACI .200 ELEVON .000
AILRON .000 RUDDER .000
SPDRK 25.000

REFERENCE INFORMATION
SREF 4.4119 SQ.FT.
LREF 19.2258 INO-ES
BREF 37.9258 INO-ES
VTRP 43.5574 INO-ES
WTRP .0000 INO-ES
ZTRP 15.1875 INO-ES
SCALE .0405 SCALE



YAWING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CYMBET, PER DEGREE

FIG 6 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL ON, BDFLAP = -11.7DEG

(AF5012)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL
O

BD FLAP
-12.000

WACH
A110N
SPDRK

PARAMETRIC VALUES
.200 ELEVON
.000 RUDDER
25.000

REFERENCE INFORMATION
SREF 4.4119
LREF 19.2299
BREF 37.5359
XREF 43.5974
YREF .0000
ZREF 15.1875
SCALE .0405

SO.FT.
INCHES
INCHES
INCHES
INCHES
INCHES
SCALE

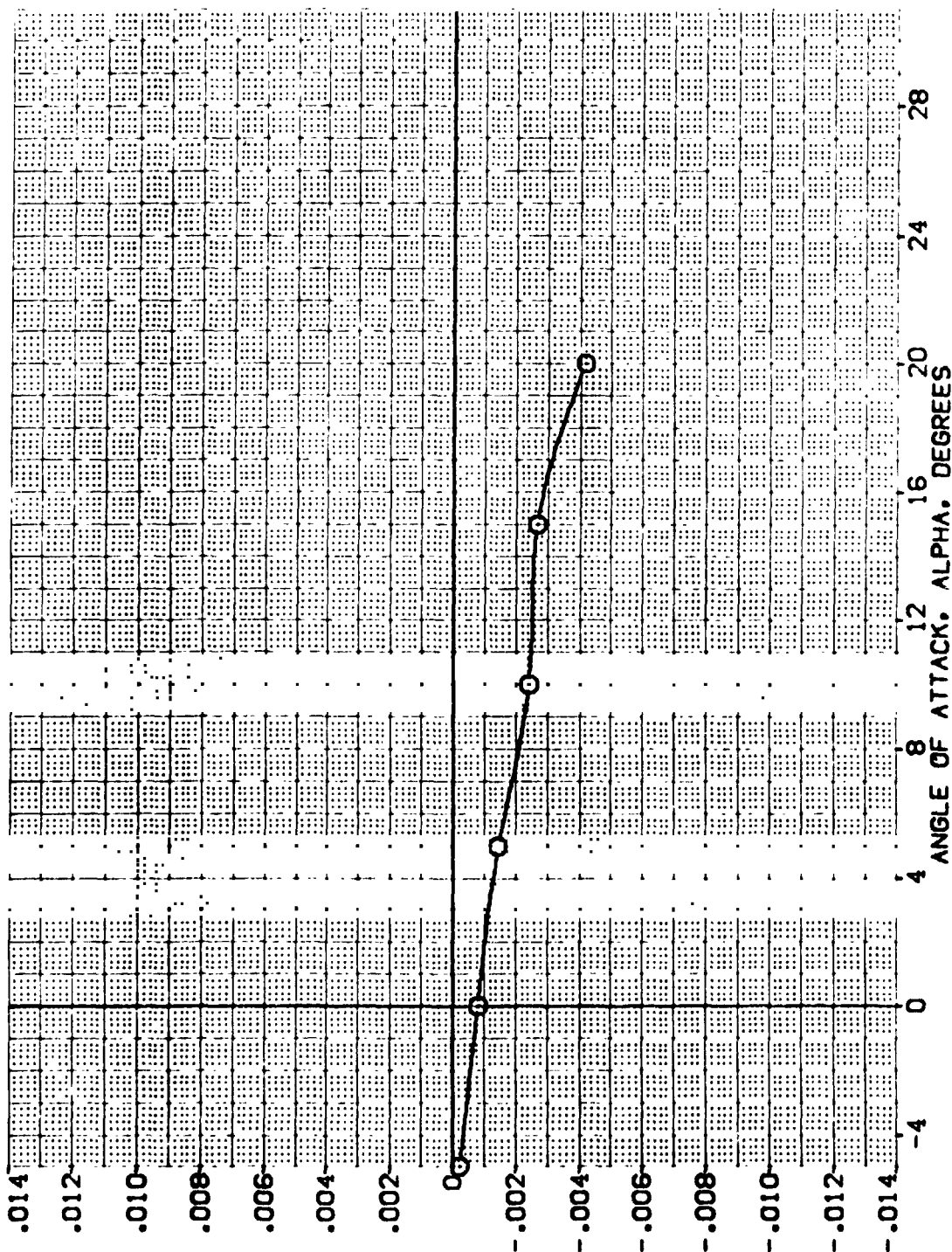


FIG 6 LATERAL-DIRECTIONAL STABILITY, VERTICAL TAIL ON, BD FLAP = -11.7DEG

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EF5007} 0 0A110 BSIC11F12V51V124E40V19R17C31
 {EF5011} 0 0A110 BSIC11F12V51V124E40V19R15C29

ELEVON ATTORN RUDDER SPORBN
 .000 .000 .000 25.000
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 50-FT.
 LREF 19.2259 INO-ES
 BREF 37.9359 INO-ES
 XPRP 43.5974 INO-ES
 YPRP .0000 INO-ES
 ZPRP 15.1875 INO-ES
 SCALE .0405 SCALE

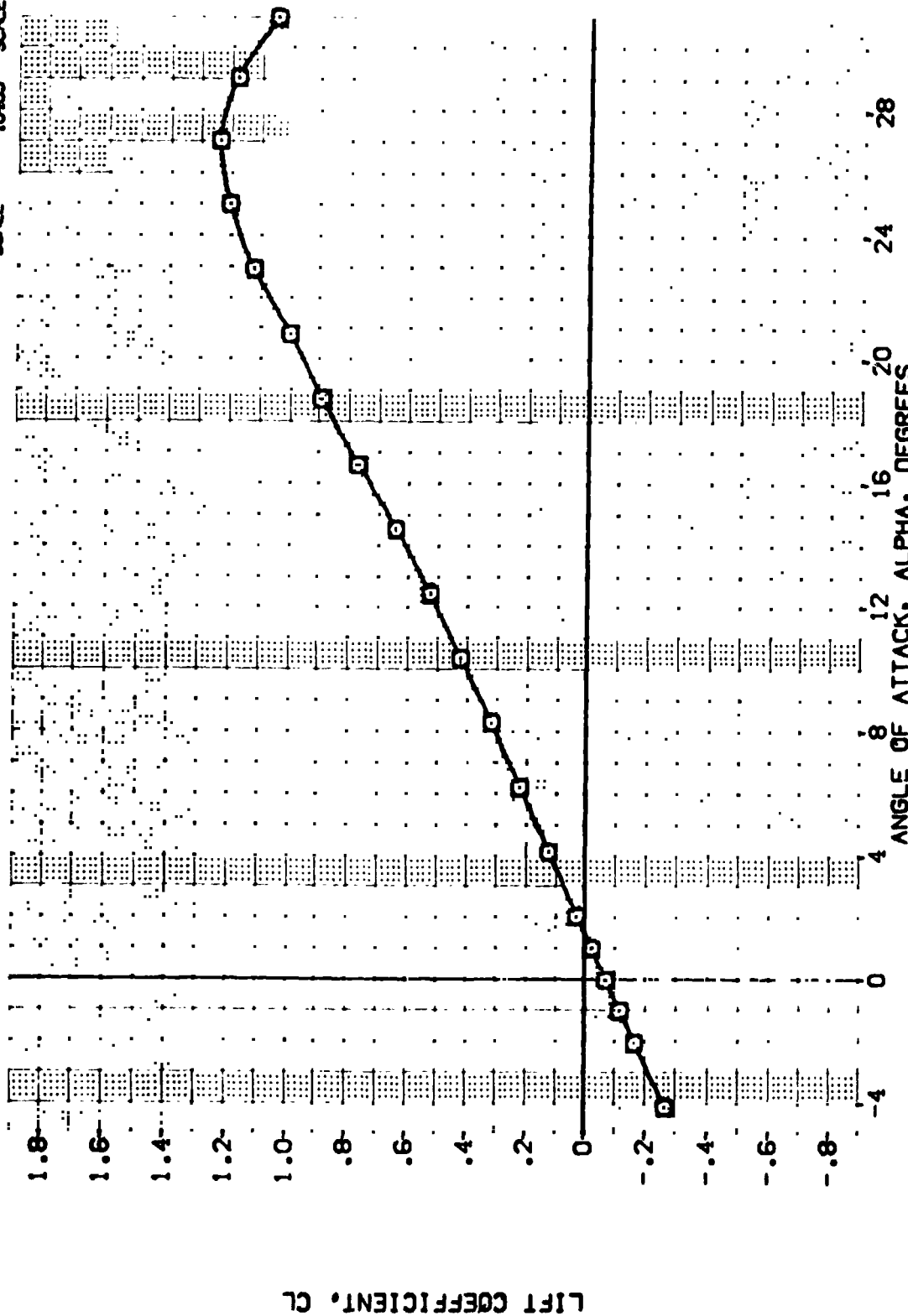


FIG 7 EFFECT OF VERTICAL TAIL GRIT, BOFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBL	CONFIGURATION	DESCRIPTION
{EP3007}	0A110	861C11F1251V124E40V19R17C01
{EP5011}	0A110	861C11F1251V124E40V19R15C29

ELEVATION	AIRLON	NUCLOER	SPIDBANK	REFERENCE INFORMATION
.000	.000	.000	25.000	SREF 4.4119 50. FT.
.000	.000	.000	25.000	BREF 19.2259 INCHES
.000	.000	.000	25.000	BREF 37.9359 INCHES
.000	.000	.000	25.000	YREF 43.5974 INCHES
.000	.000	.000	25.000	YREF .0000 INCHES
.000	.000	.000	25.000	ZREF 15.1875 INCHES
.000	.000	.000	25.000	SCALE .0405 SCALE

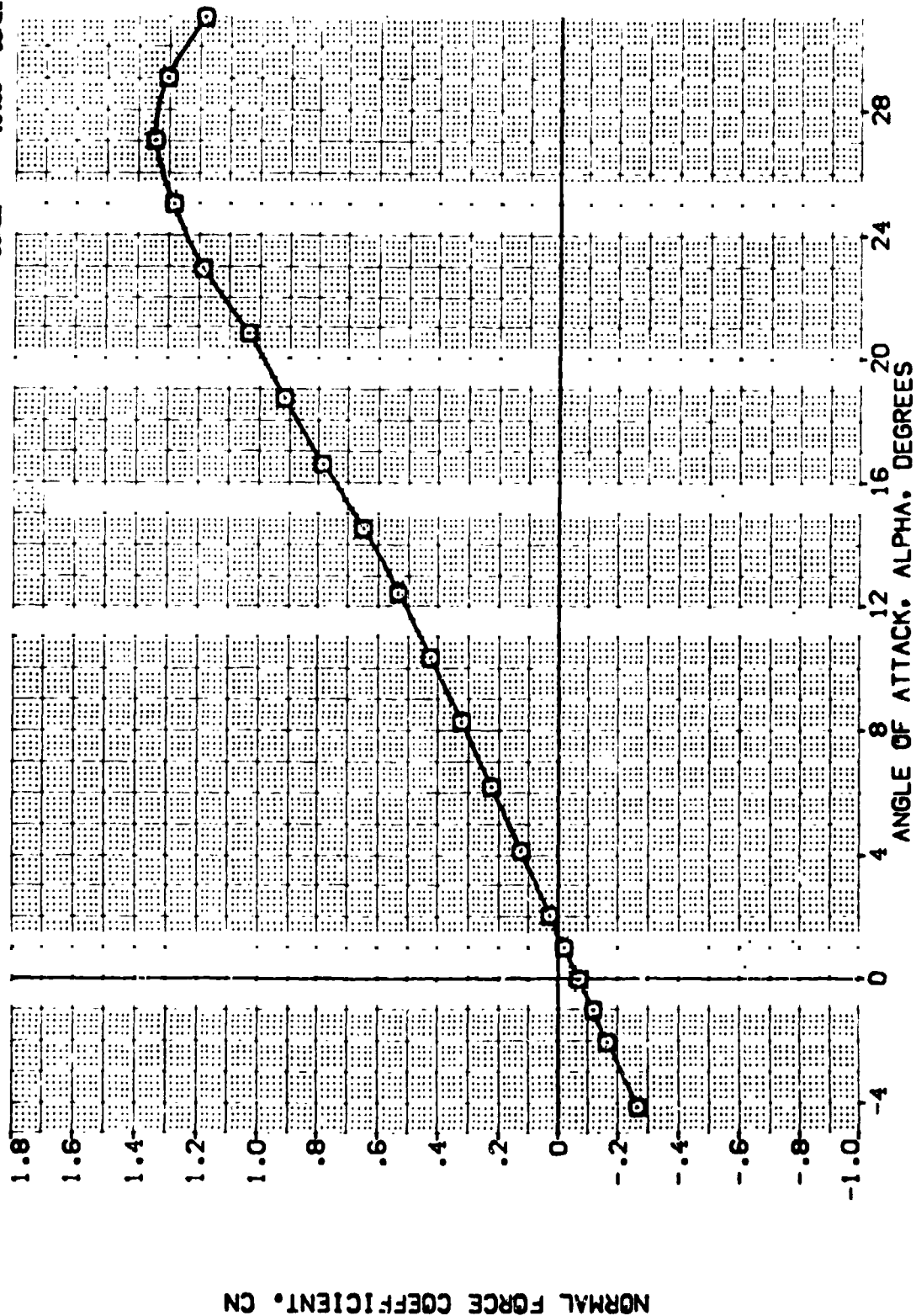


FIG 7 EFFECT OF VERTICAL TAIL GRIT, BDFLAP = -11.7 DEG.

$$C_A]_{MACH} = .20$$

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF3007) 01110 0010111251124011701
 (EF5011) 01110 0010111251124011701

ELEVON AILRON RUDDER SPURK
 .000 .000 .000 25.000
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 50.47 INOES
 LREF 19.2259 INOES
 BREF 37.5359 INOES
 XREF 43.5974 INOES
 YREF .0000 INOES
 ZREF 15.1875 INOES
 SCALE .0405 SCALE

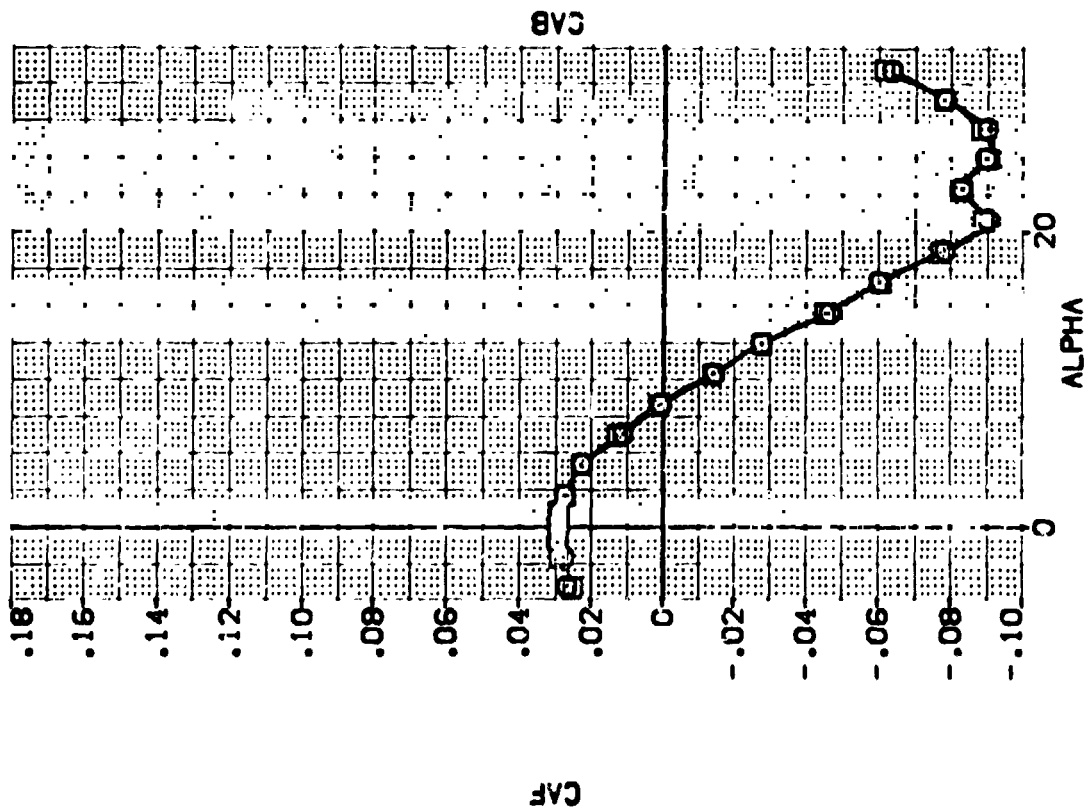


FIG 7 EFFECT OF VERTICAL TAIL GRIT. BOFLAP = -11.7 DEG.

CAVMACH = .20

DATA SET SHEET. CONFIGURATION DESCRIPTION
 (E3007) 8 0A110 881E11F1251V124E40V198170J
 (E3011) 8 0A110 881E11F1251V124E40V19815028

ELEVATION ALLISON RUDDER SPIDARK
 .000 .000 .000
 .000 .000 .000

REFERENCE INFORMATION
 SREF 4.4119 SO.FT.
 LREF 19.2289 INO-ES
 BREF 37.9359 INO-ES
 XTRP 43.5974 INO-ES
 YTRP .0000 INO-ES
 ZTRP 15.1875 INO-ES
 SCALE .0405

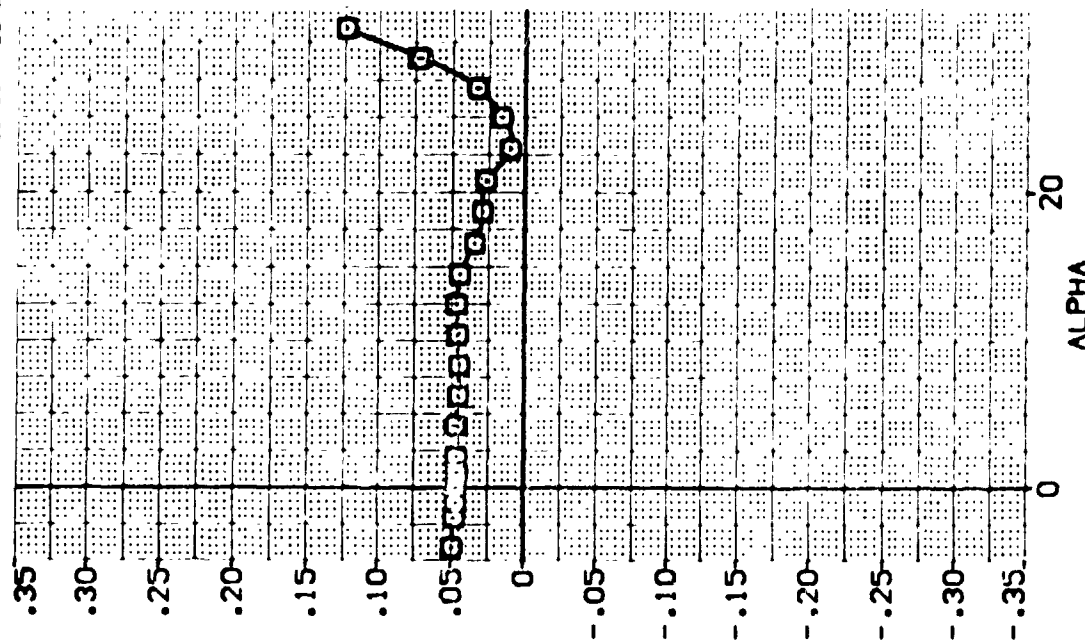
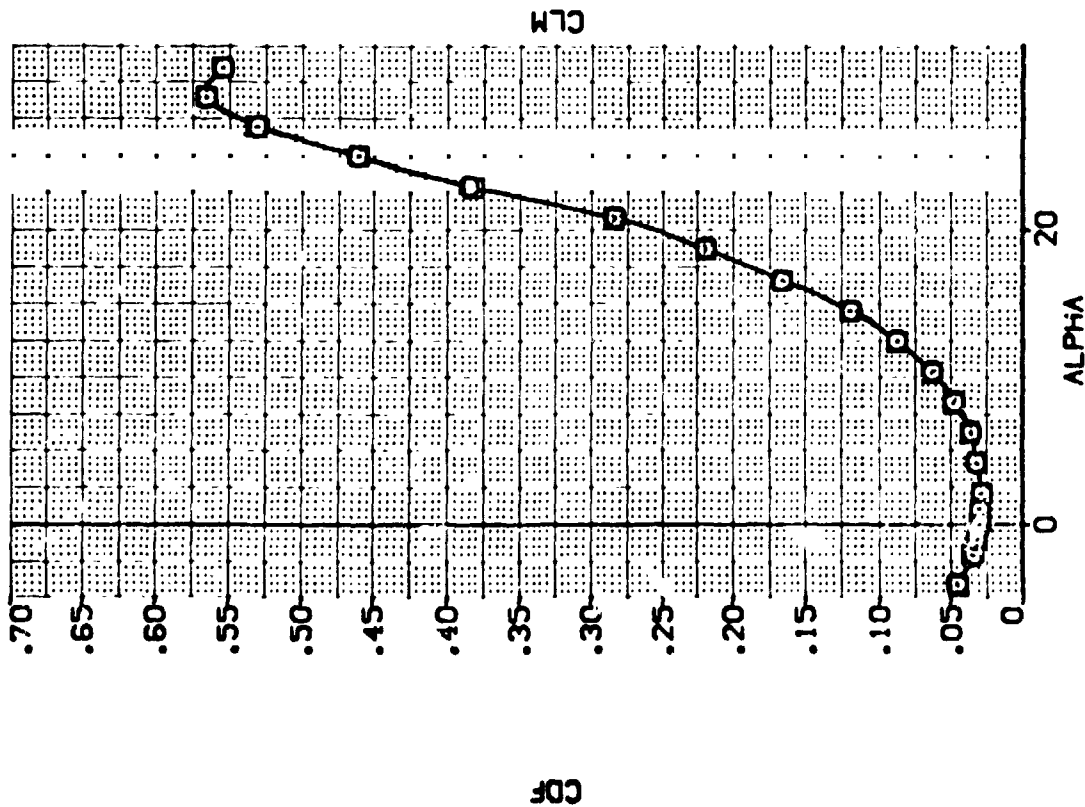


FIG 7 EFFECT OF VERTICAL TAIL GRIT, BOFLAP = -11.7 DEG.

CA/MACH = .20

ELEVATION	AIRFLOW	FLOWER	SPRINK	REFERENCE INFORMATION	50. FT.
.000	.000	.000	25.000	SHEF	19.4119
.000	.000	.000	25.000	LREF	19.2259
				SHEF	37.9353
				WREF	43.3574
				WREF	.0000
				ZREF	15.1875
				SCALE	.0405
				SCALE	INCHES

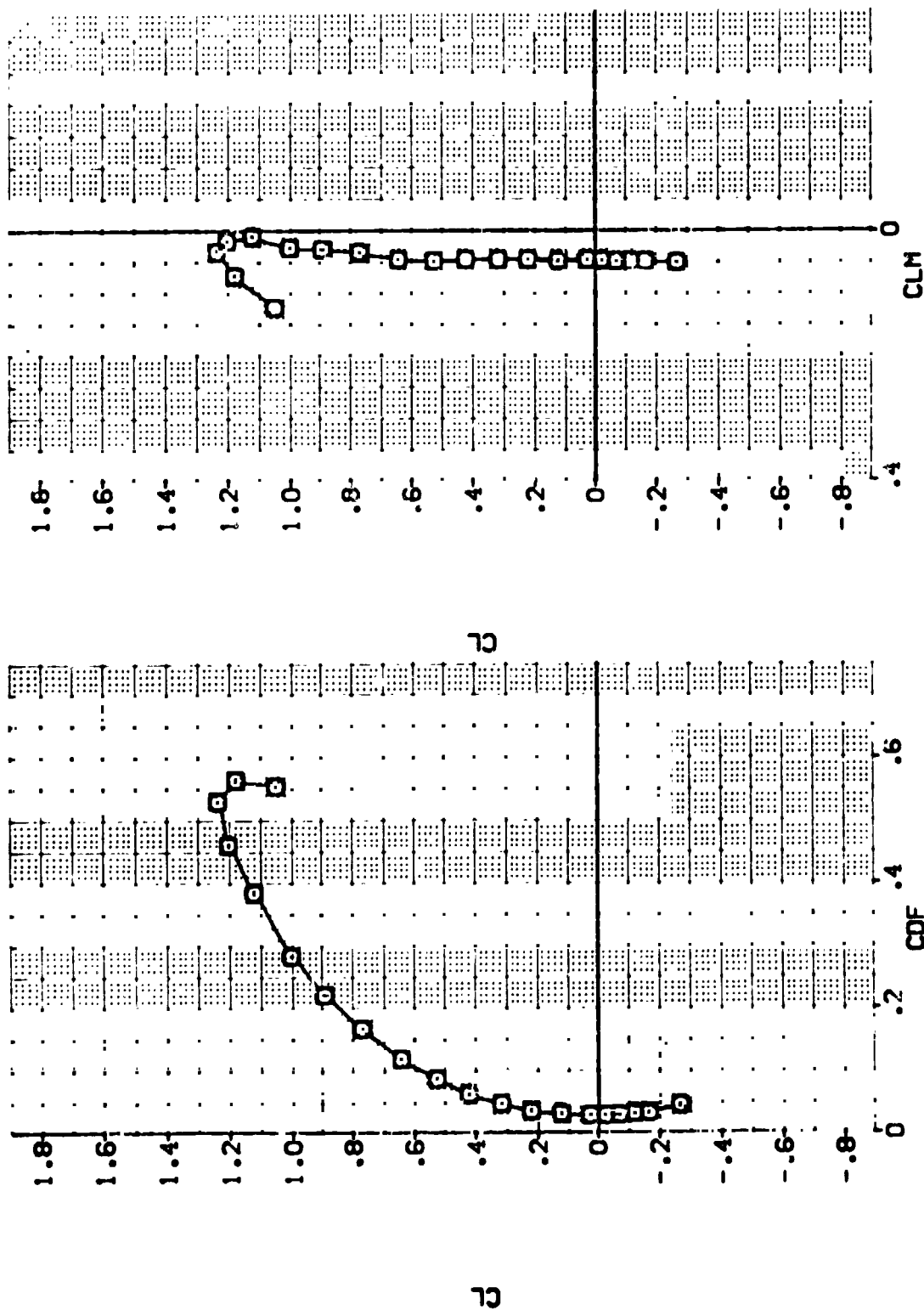


FIG 7 EFFECT OF VERTICAL TAIL GRIT, BOFLAP = -11.7 DEG.
MACH = .20

DATA SET SYMBOL: [EF5007] [EF5011]
 CONFIGURATION DESCRIPTION: [EF5007] [EF5011] 12-51V124F40V15917X31
 12-51V124F40V15917X31

ELEVON .000 .000
 ALLRON .000 .000
 RUDDER .000 .000
 SPOBRK 25.000 25.000
 REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2299 INCHES
 BREF 37.9359 INCHES
 XMRP 43.5974 INCHES
 YMRP 15.0000 INCHES
 ZMRP 15.1875 INCHES
 SCALE .0405

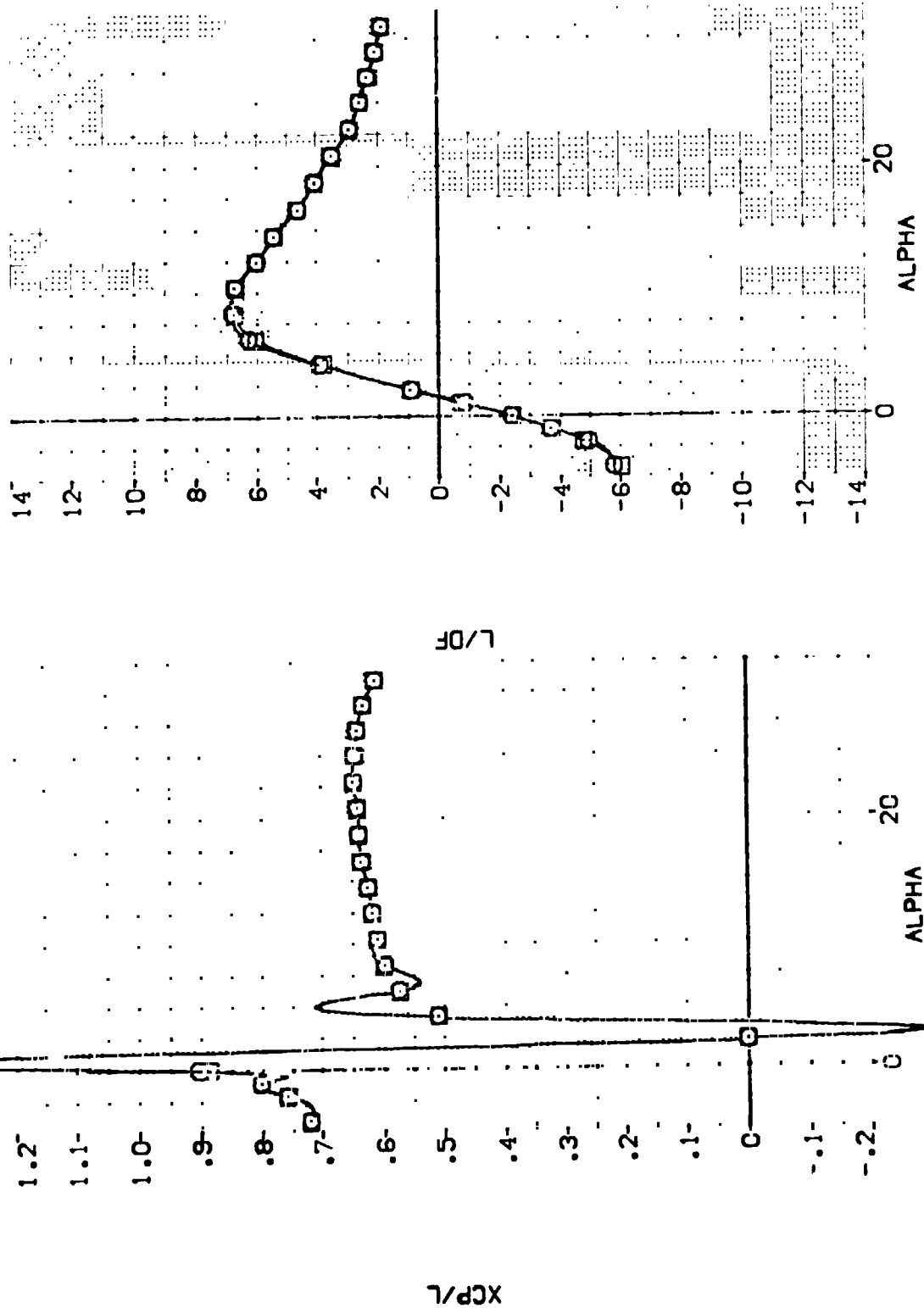


FIG 7 EFFECT OF VERTICAL TAIL GRIT, BDFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	SPDRBK	AIRLON	REFERENCE INFORMATION
[R-5008]	BA110 B61C1F1251V124E40V19R17Q1	.000	.000	25.000	.000	4.4119 50.000
[R-5009]	BA110 B61C1F1251V124E40V19R17Q1	.000	.000	25.000	.000	19.2259 50.000
[R-5010]	BA110 B61C1F1251V124E40V19R17Q1	5.000	.000	25.000	.000	37.9359 50.000
[R-5011]	BA110 B61C1F1251V124E40V19R17Q1	10.000	.000	25.000	.000	43.5974 50.000
[R-5012]	BA110 B61C1F1251V124E40V19R17Q1	10.000	.000	25.000	.000	15.1875 50.000
[R-5013]	BA110 B61C1F1251V124E40V19R17Q1	10.000	.000	25.000	.000	15.1875 50.000
[R-5014]	BA110 B61C1F1251V124E40V19R17Q1	10.000	.000	25.000	.000	15.1875 50.000
[R-5015]	BA110 B61C1F1251V124E40V19R17Q1	10.000	.000	25.000	.000	15.1875 50.000

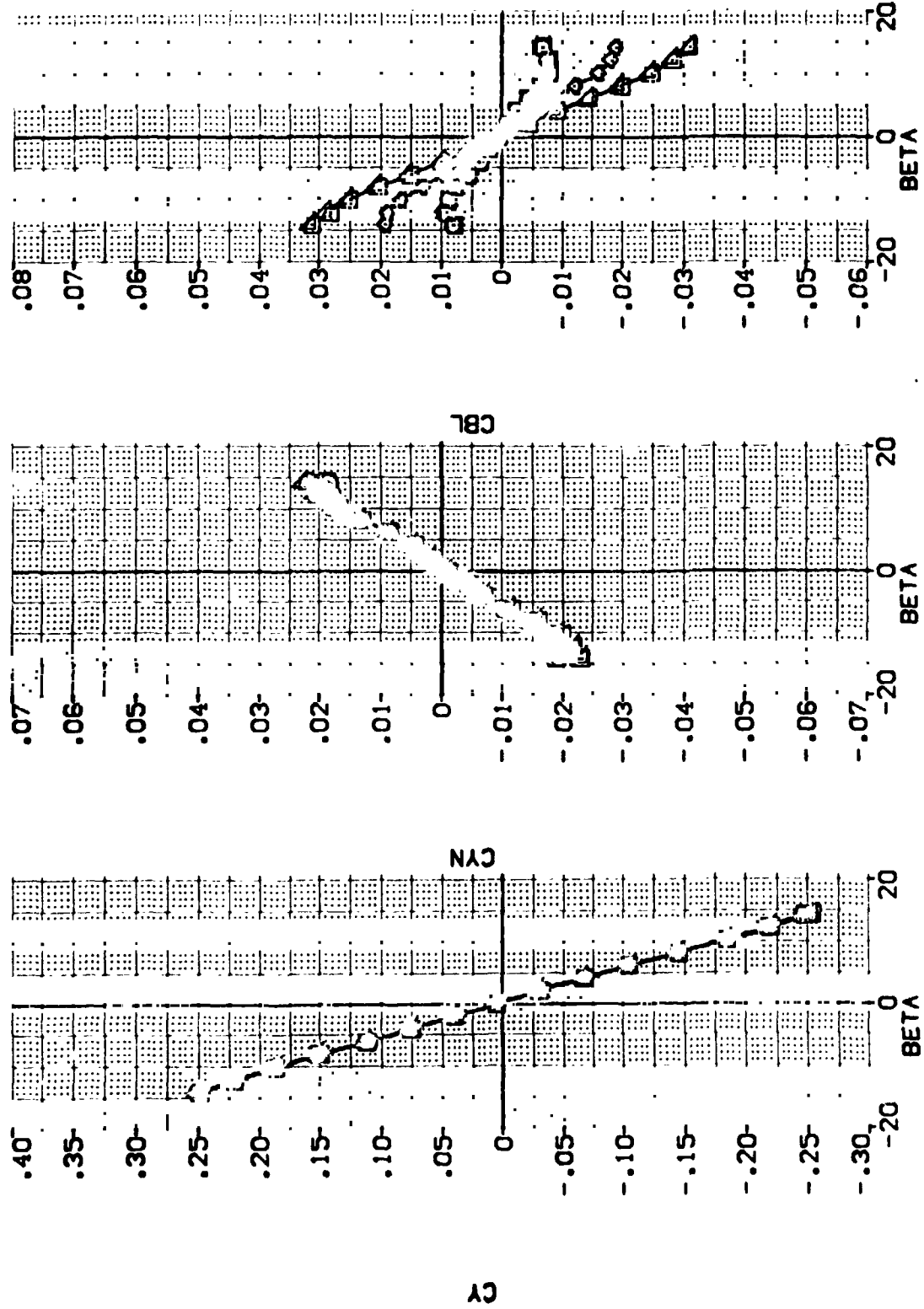


FIG 8 EFFECT OF VERTICAL TAIL GRIT, ALPHA = 0, 5, AND 10 DEG.

(AJMACH = .20

(FF5008)

0A110 B61C11F12M51W124E40V19R17X31

SYMBOL V-GRIT
 .000
 .008

PARAMETRIC VALUES
 .200 BOFLAP -12.000
 .000 AILRON .000
 .000 SPOBRK 25.000

MACN
 ELEVON
 RUDDER

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT
 LREF 19.2299 INCHES
 BREF 37.3359 INCHES
 XPRP 43.5974 INCHES
 YPRP .0000 INCHES
 ZPRP 15.1875 INCHES
 SCALE .0405

SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

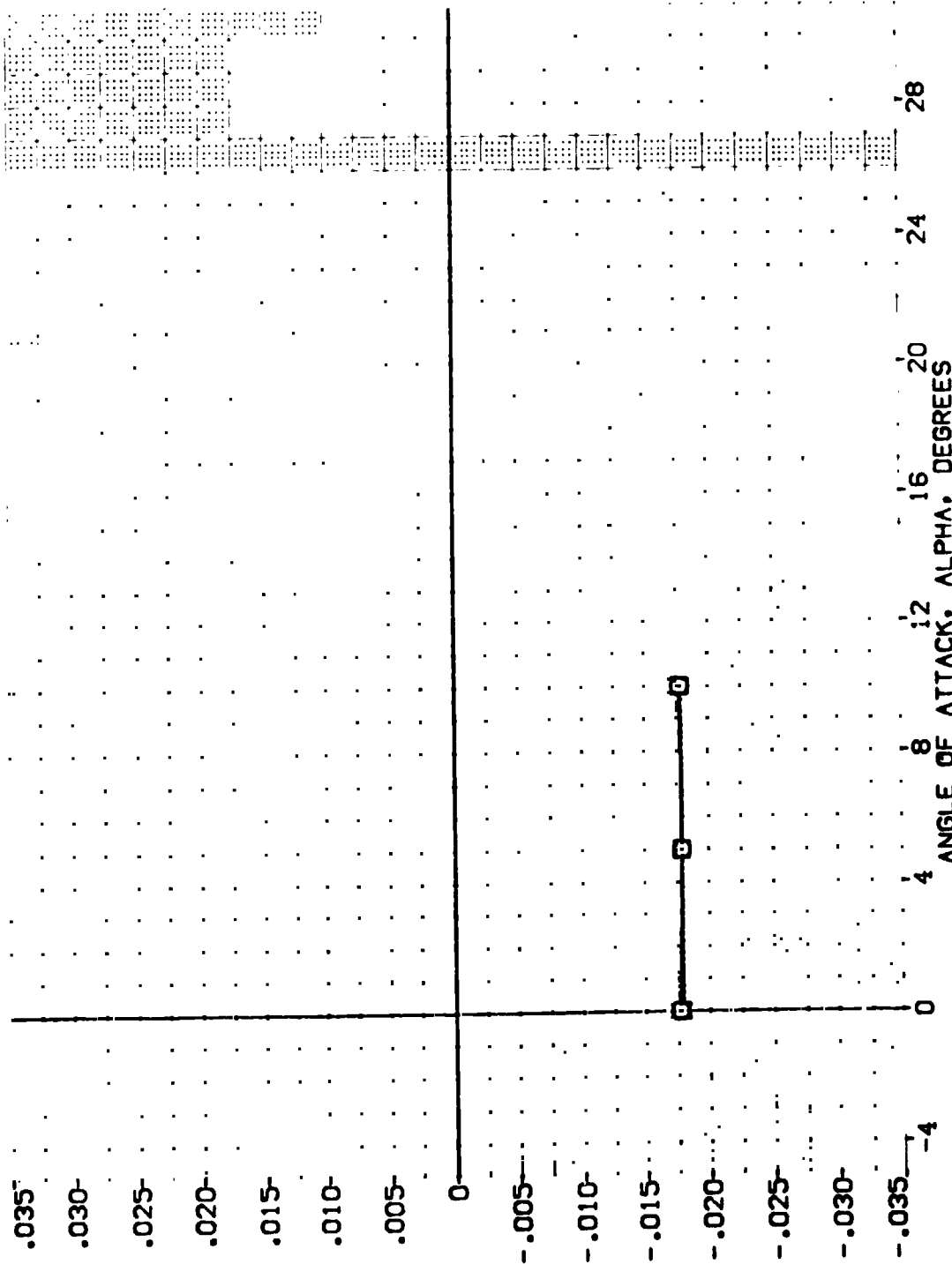


FIG 8 EFFECT OF VERTICAL TAIL GRIT, ALPHA = 0, 5, AND 10 DEG.



0A110 861C11F12M51W124E40V19R17X31

(FF5008)

SYMBOL		V-GRIT		MACH		PARAMETRIC VALUES		REFERENCE INFORMATION	
<input type="checkbox"/>		.000		.000		.200	BOFLAP	SREF	4.4119
<input type="checkbox"/>		.008		.000		.000	AILRON	LRPF	19.2299
				.000		.000	SPDRBK	BRPF	37.9359
						.000		XTRP	43.5974
								YTRP	.0000
								ZTRP	15.1875
								SCALE	.0405
									SO.FT.
									INO-ES
									INO-ES
									INO-ES
									INO-ES
									INO-ES
									SCALE

YAWING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CYNBET, PER DEGREE

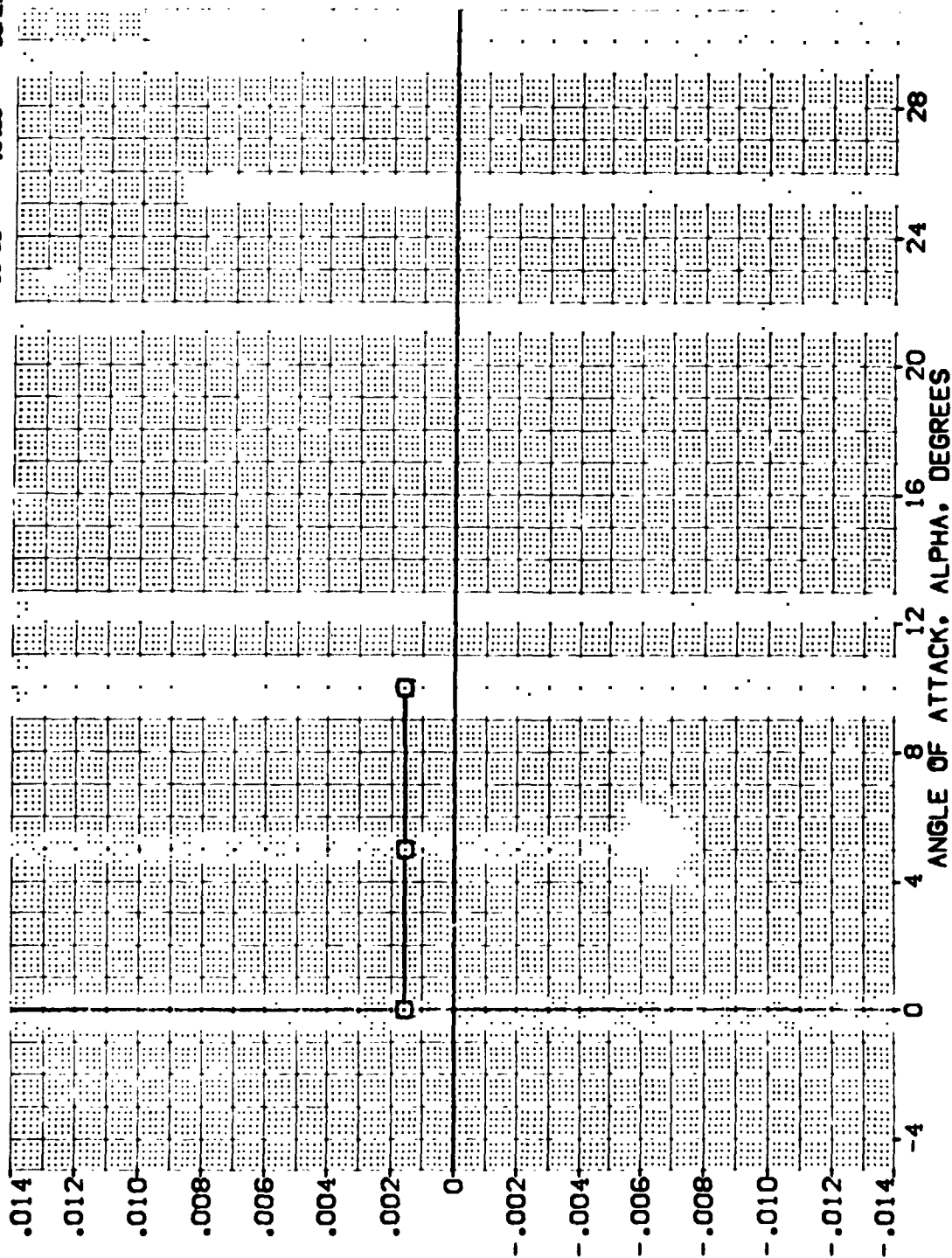


FIG 8 EFFECT OF VERTICAL TAIL GRIT, ALPHA = 0, 5, AND 10 DEG.

0A110 B61C11F12M51W124E40V19R17X31

(FF5008)

SYMBOL
□

V-GRIT
.000
.008

MACH
ELEVON
RUDDER

PARAMETRIC VALUES
.200 BOFLAP
.000 AILRON
.000 SPOBRK

-12.000
.000
25.000

REFERENCE INFORMATION
SREF 4.4119 SO.FT.
LREF 19.2239 IN-ES
BREF 27.9639 IN-ES
XMRP 43.5974 IN-ES
YMRP .0000 IN-ES
ZMRP 15.1875 IN-ES
SCALE .0405 SCALE

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBLBET, PER DEGREE

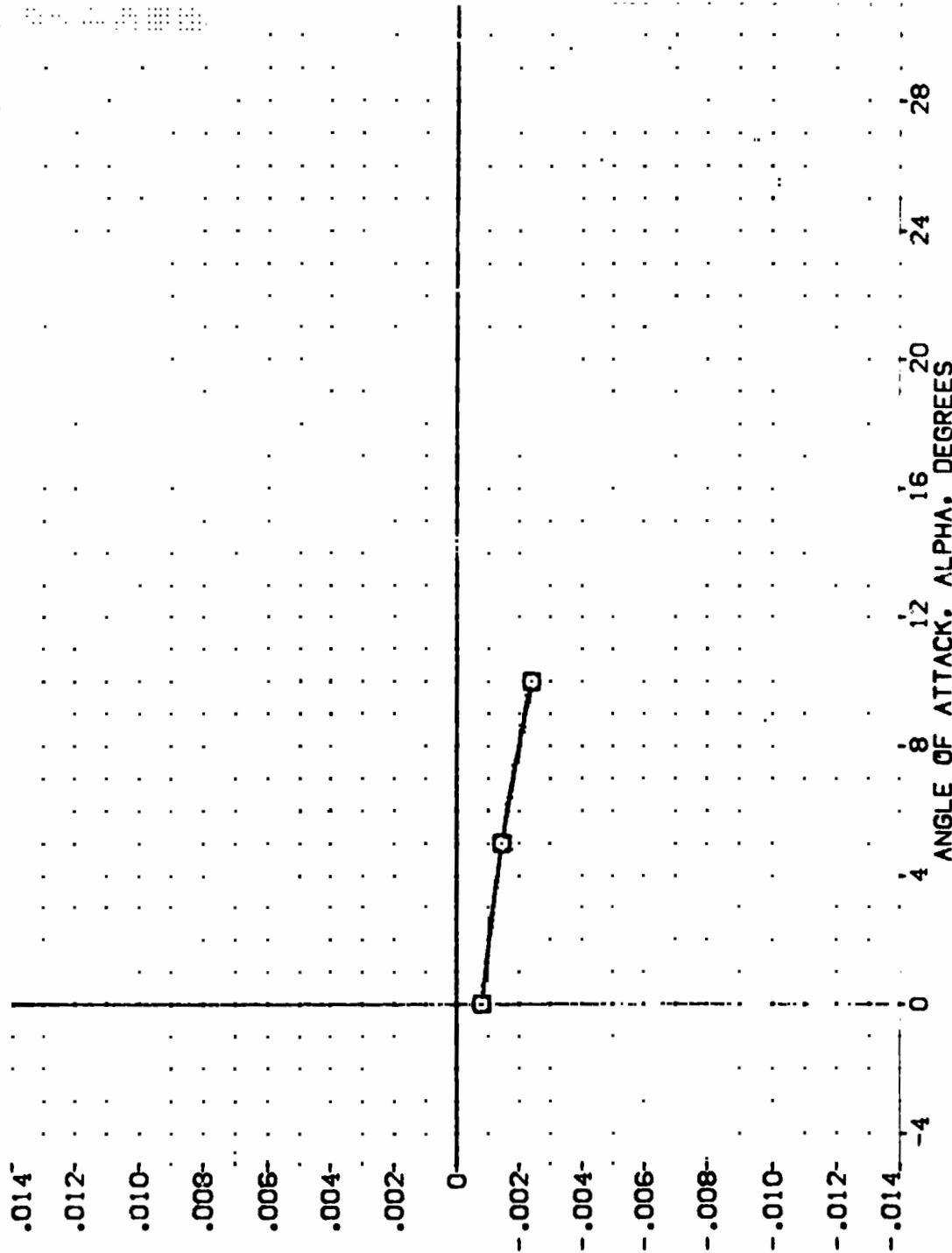


FIG 8 EFFECT OF VERTICAL TAIL GRIT, ALPHA = 0, 5, AND 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5020) □ 01110 BSIC11F1251V124E40V1SR15029
 (EF5011) □ 01110 BSIC11F1251V124E40V1SR15029
 (EF5018) □ 01110 BSIC11F1251V124E40V1SR15029
 (EF5019) □ 01110 BSIC11F1251V124E40V1SR15029

ELEVON AIRLON RUDDER SPEEDX REFERENCE INFORMATION
 -20.000 .000 25.000 SREF 4.4119 50.FT.
 5.000 .000 25.000 LREF 19.2299 INCHES
 15.000 .000 25.000 BREF 37.9359 INCHES
 .000 .000 25.000 XREF 43.5974 INCHES
 .000 .000 25.000 YREF 15.1875 INCHES
 .000 .000 25.000 ZREF 15.1875 INCHES
 .000 .000 25.000 SCALE .0405 SCALE

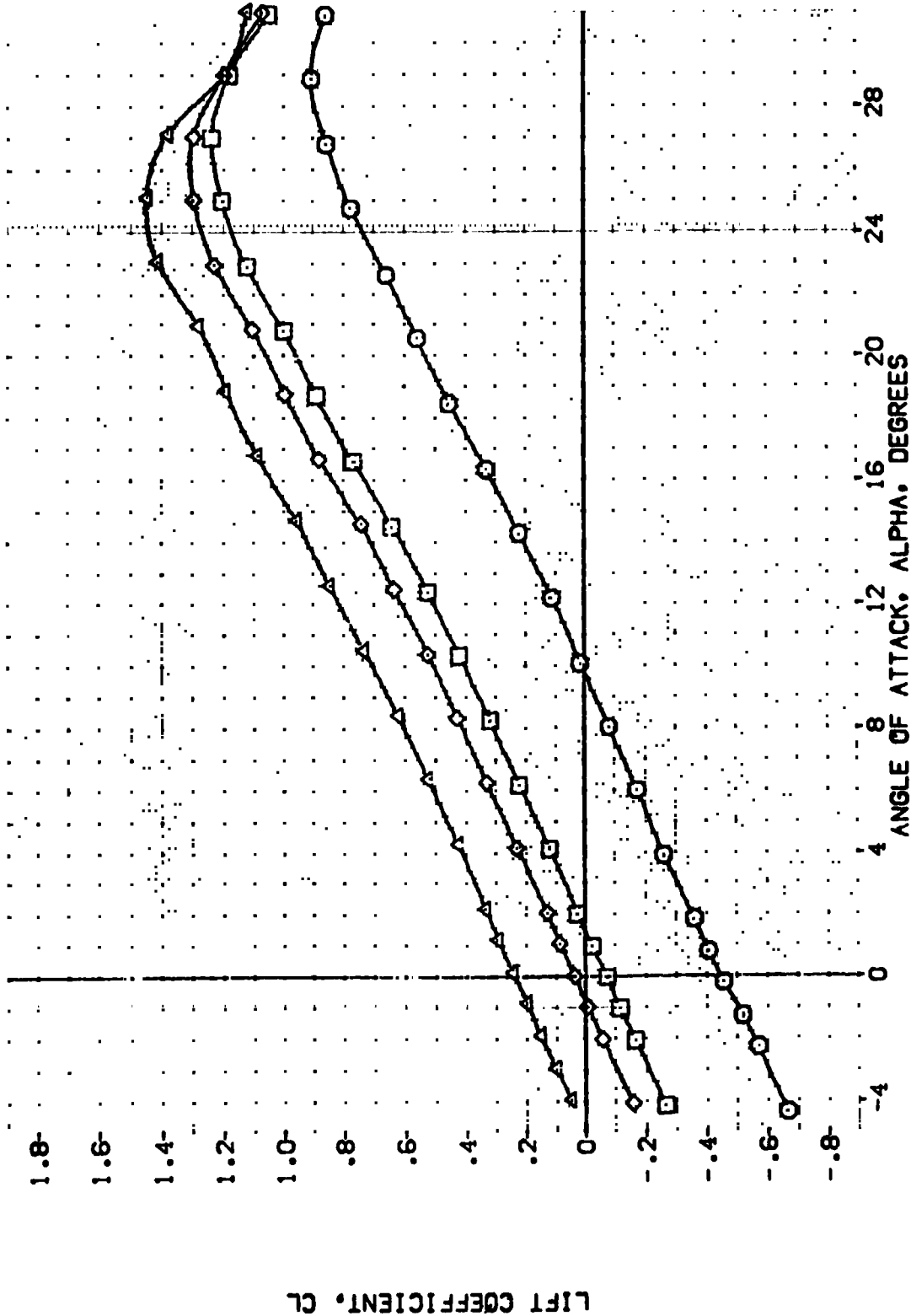


FIG 9 BASELINE ELEVON EFFECTIVENESS, BDFLAP = -11.7 DEG.

CA/MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5020) 0A110 BS1C11F1251V124E40V1SR15C23
 (EF5011) 0A110 BS1C11F1251V124E40V1SR15C23
 (EF5018) 0A110 BS1C11F1251V124E40V1SR15C23
 (EF5019) 0A110 BS1C11F1251V124E40V1SR15C23

ELEVON AILERON RUDDER SPOILER
 -20.000 .000 .000 25.000
 5.000 .000 .000 25.000
 15.000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 50. FT.
 UREF 19.2259 IN-OES
 BREF 37.9559 IN-OES
 XMRP 43.5574 IN-OES
 YMRP .0000 IN-OES
 ZMRP 15.1875 IN-OES
 SCALE .0405 SCALE

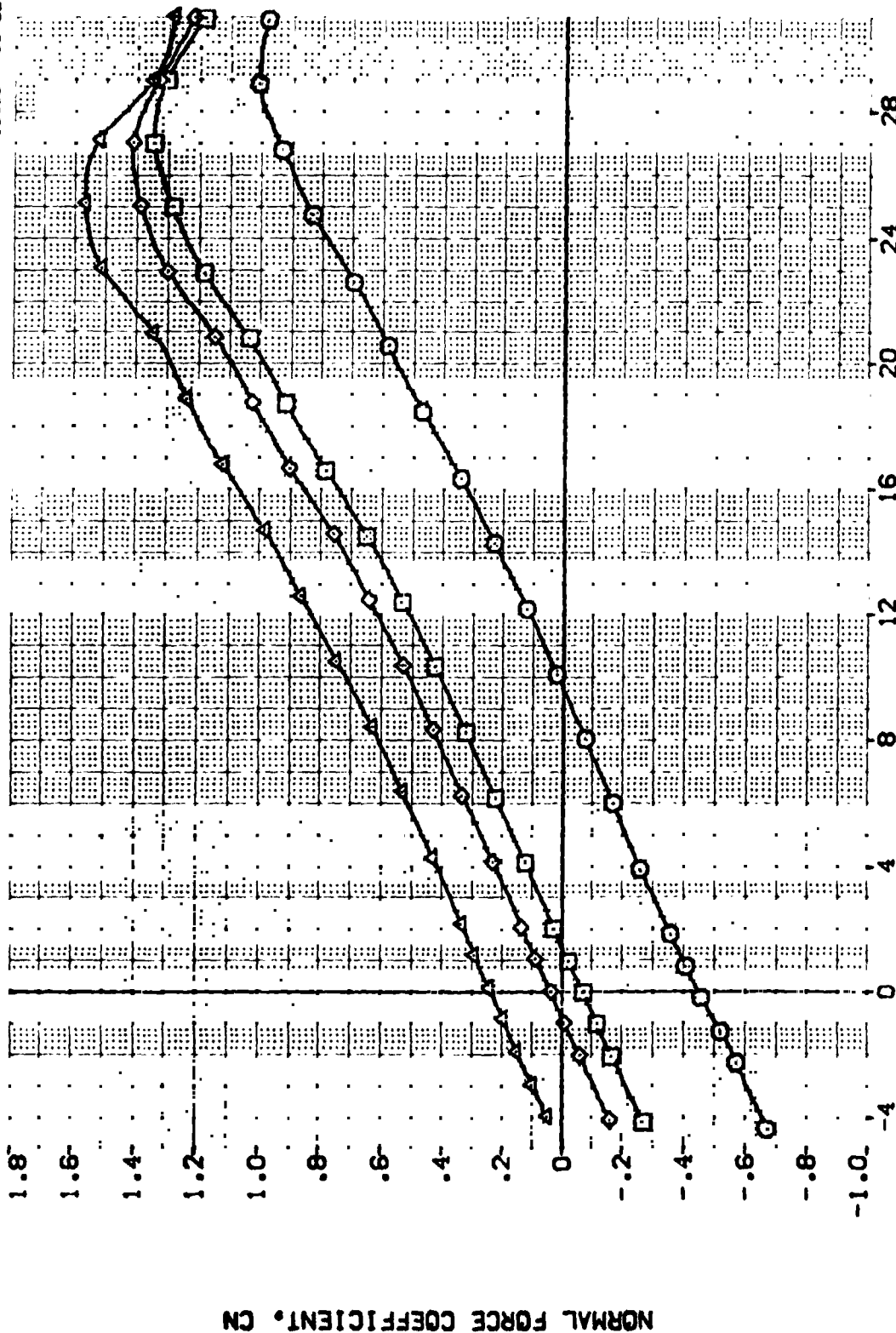


FIG 9 BASELINE ELEVON EFFECTIVENESS, BOFLAP = -11.7 DEG.
 (A)MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	FLUDER	SPDRBK	REFERENCE INFORMATION
(EF3020)	0A110 BSIC11F1251V124E40V1SR15C25	-20.000	.000	.000	25.000	SREF 4.4119 90.471
(EF3011)	0A110 BSIC11F1251V124E40V1SR15C25	.000	.000	.000	25.000	LREF 19.2288 100.000
(EF3018)	0A110 BSIC11F1251V124E40V1SR15C25	.000	.000	.000	25.000	BREF 37.5535 100.000
(EF3019)	0A110 BSIC11F1251V124E40V1SR15C25	15.000	.000	.000	25.000	YREF 43.5574 100.000
						ZREF 15.1875 100.000
						SCALE .0405

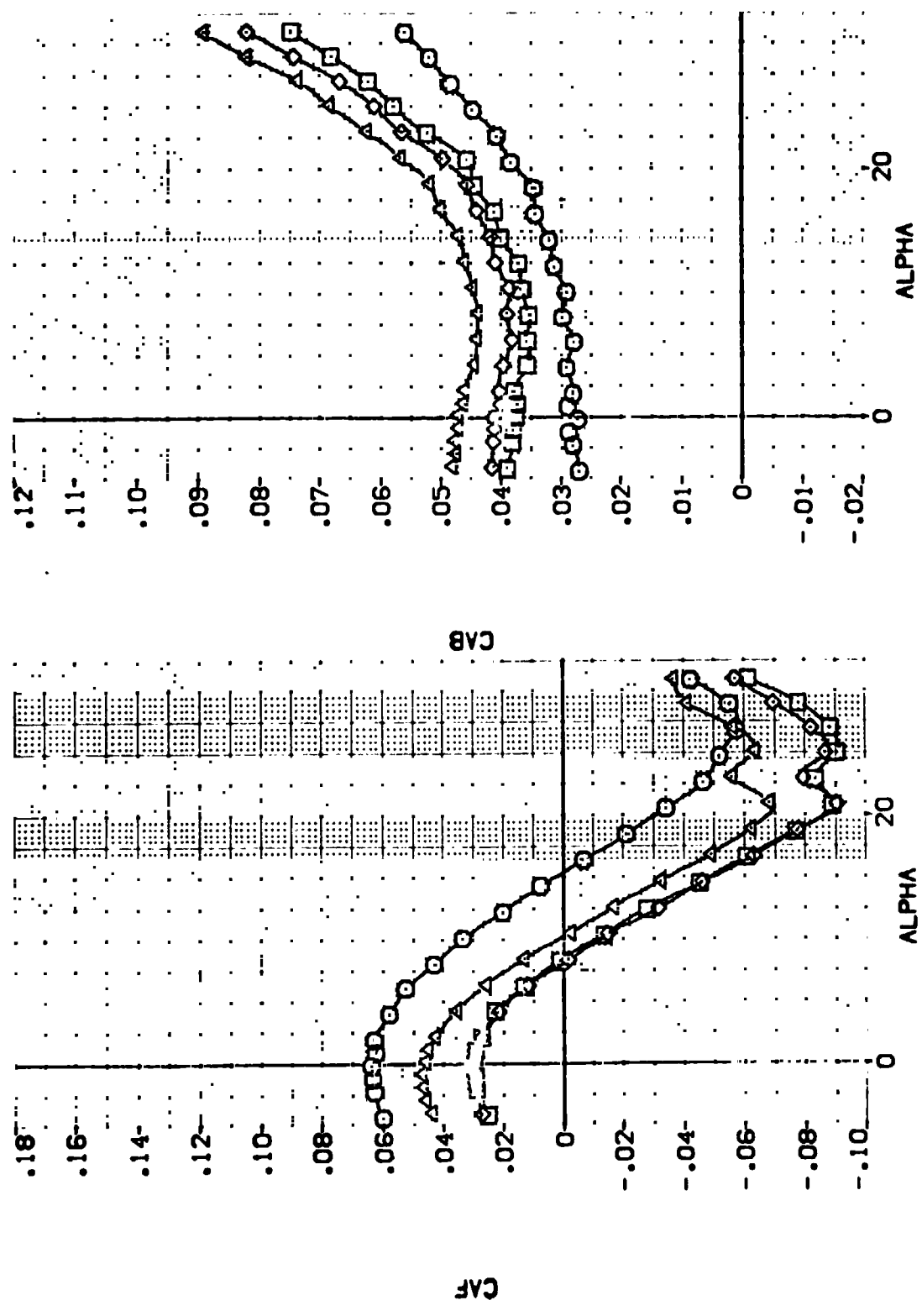


FIG 3 BASELINE ELEVON EFFECTIVENESS, BOFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBO. CONFIGURATION DESCRIPTION

(E5020)	0A110	861C11F1251V124E40V18R15C28
(E5011)	0A110	861C11F1251V124E40V18R15C28
(E5018)	0A110	861C11F1251V124E40V18R15C28
(E5019)	0A110	861C11F1251V124E40V18R15C28

ELEVON AILRON RUDDER SPDBRK REFERENCE INFORMATION

-20.000	.000	.000	25.000	SNRF	4.4119	50.FT.
.000	.000	.000	25.000	LRNF	19.2259	INO-ES
5.000	.000	.000	25.000	BRNF	37.5359	INO-ES
15.000	.000	.000	25.000	VRNF	43.5974	INO-ES
				VRNP	.0000	INO-ES
				ZRNP	15.1875	INO-ES
				SCALE	.0405	SCALE

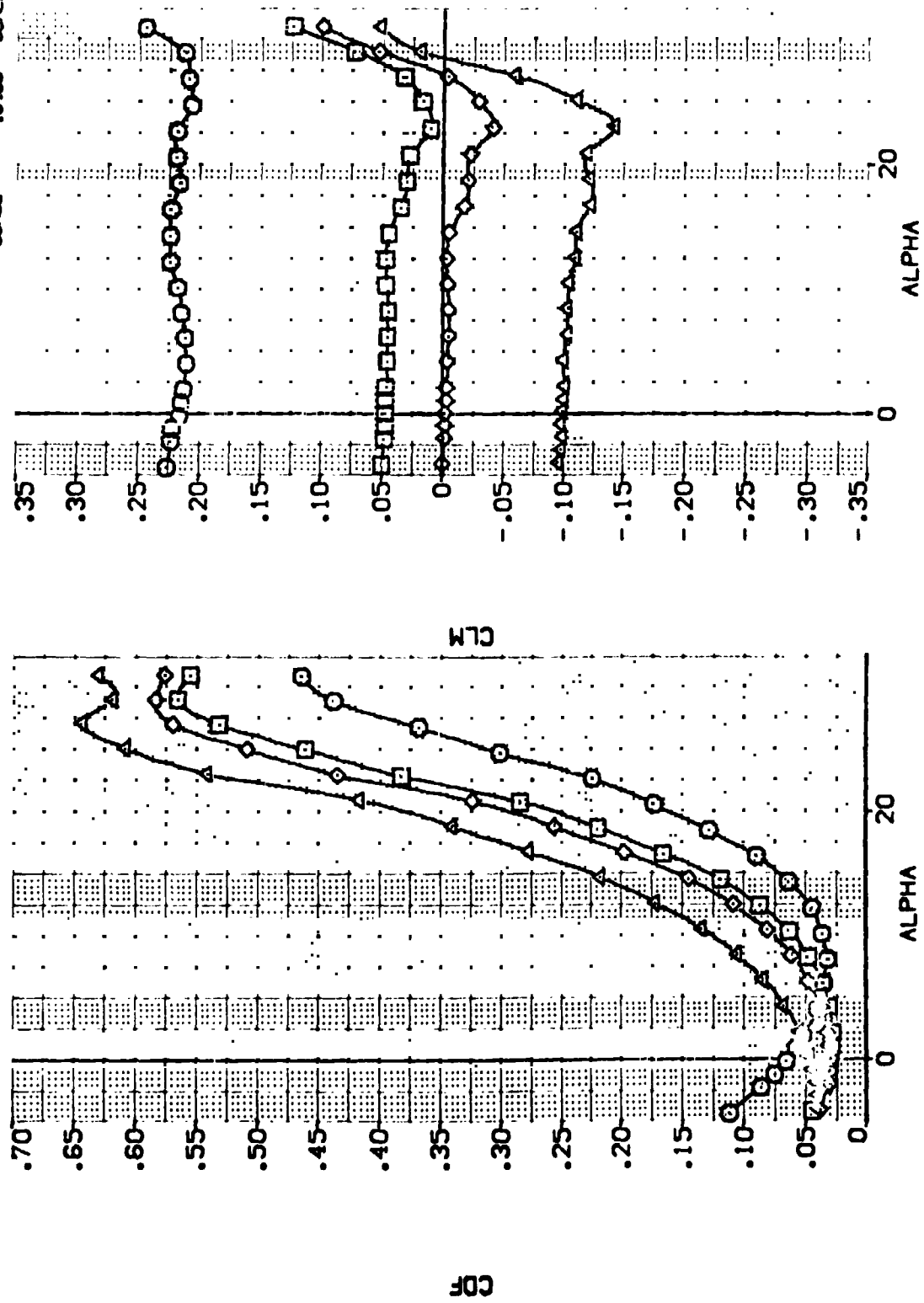


FIG 9 BASELINE ELEVON EFFECTIVENESS, BOFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPDRBK	REFERENCE INFORMATION
{EP5020}	0A110 BSIC11F126S1V124E40V1SR15X29	-20.000	.000	.000	25.000	SREF 4.4119 SQ.FT.
{EP5011}	0A110 BSIC11F126S1V124E40V1SR15X29	.000	.000	.000	25.000	LREF 19.2258 INOES
{EP5018}	0A110 BSIC11F126S1V124E40V1SR15X29	.000	.000	.000	25.000	BREF 37.9358 INOES
{EP5019}	0A110 BSIC11F126S1V124E40V1SR15X29	15.000	.000	.000	25.000	XREF 43.5874 INOES
						YREF .0000 INOES
						ZREF 15.1875 INOES
						SCALE .0405

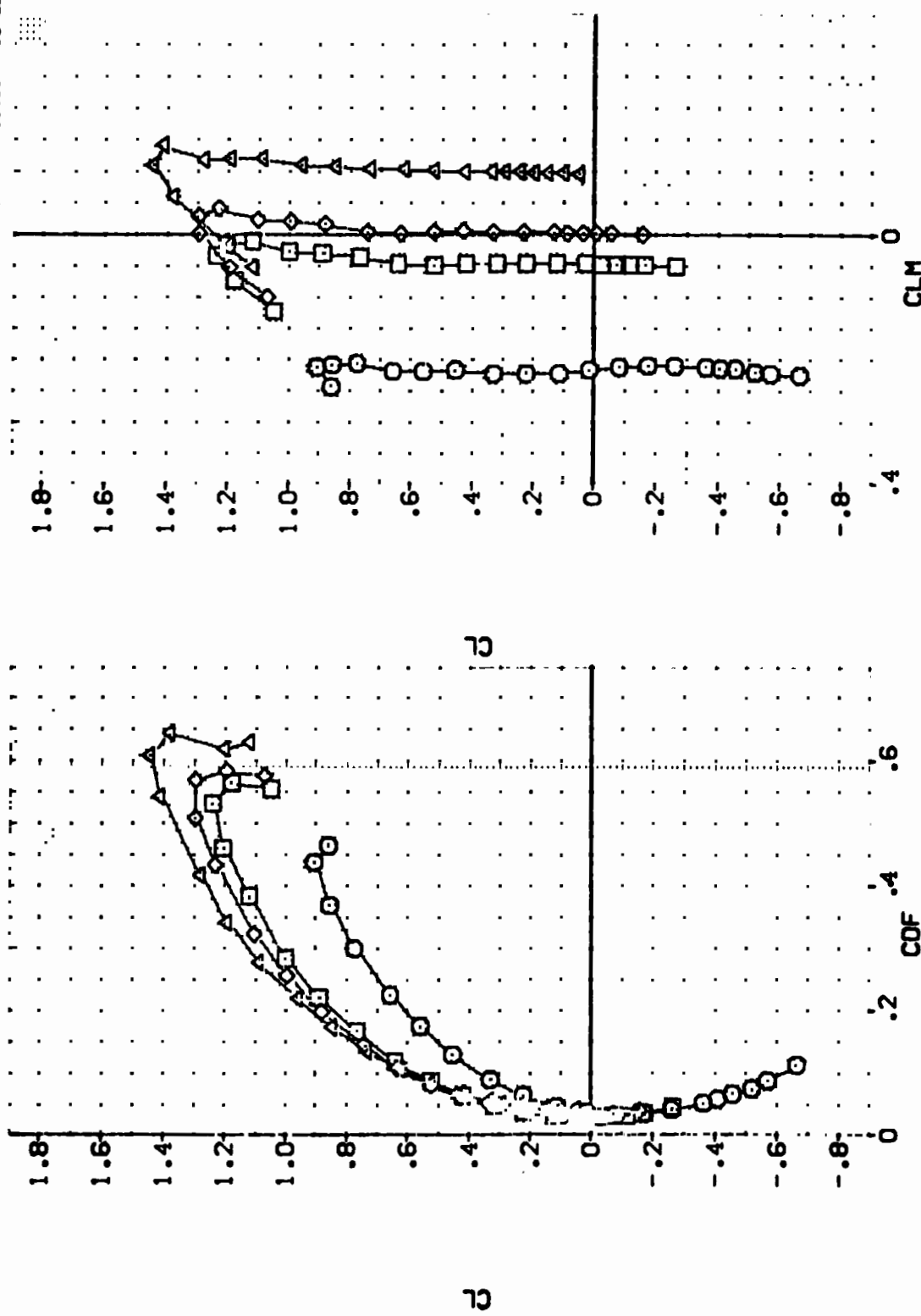


FIG 9 BASELINE ELEVON EFFECTIVENESS. BDFLAP = -11.7 DEG.

(A)MACH = .20

FIG 9 BASELINE ELEVON EFFECTIVENESS, BDFLAP = -11.7 DEG.



(KF5020)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL

ALPHA
16.000
20.000
24.000
28.000

WCH
BDFLAP
RUDDER

PARAMETRIC VALUES
.200 AILRON
-12.000 SPDR
.000 BETA

DATA SOURCE
ELEVON
-20.000
5.000

DATASET
KF5011
KF5019

REFERENCE INFORMATION
SREF
LREF
BREF
XREF
YREF
ZREF
SCALE
4.4119 SQ.FT.
19.2239 INCHES
37.9358 INCHES
43.5974 INCHES
15.0000 INCHES
15.1875 INCHES
.0405 SCALE

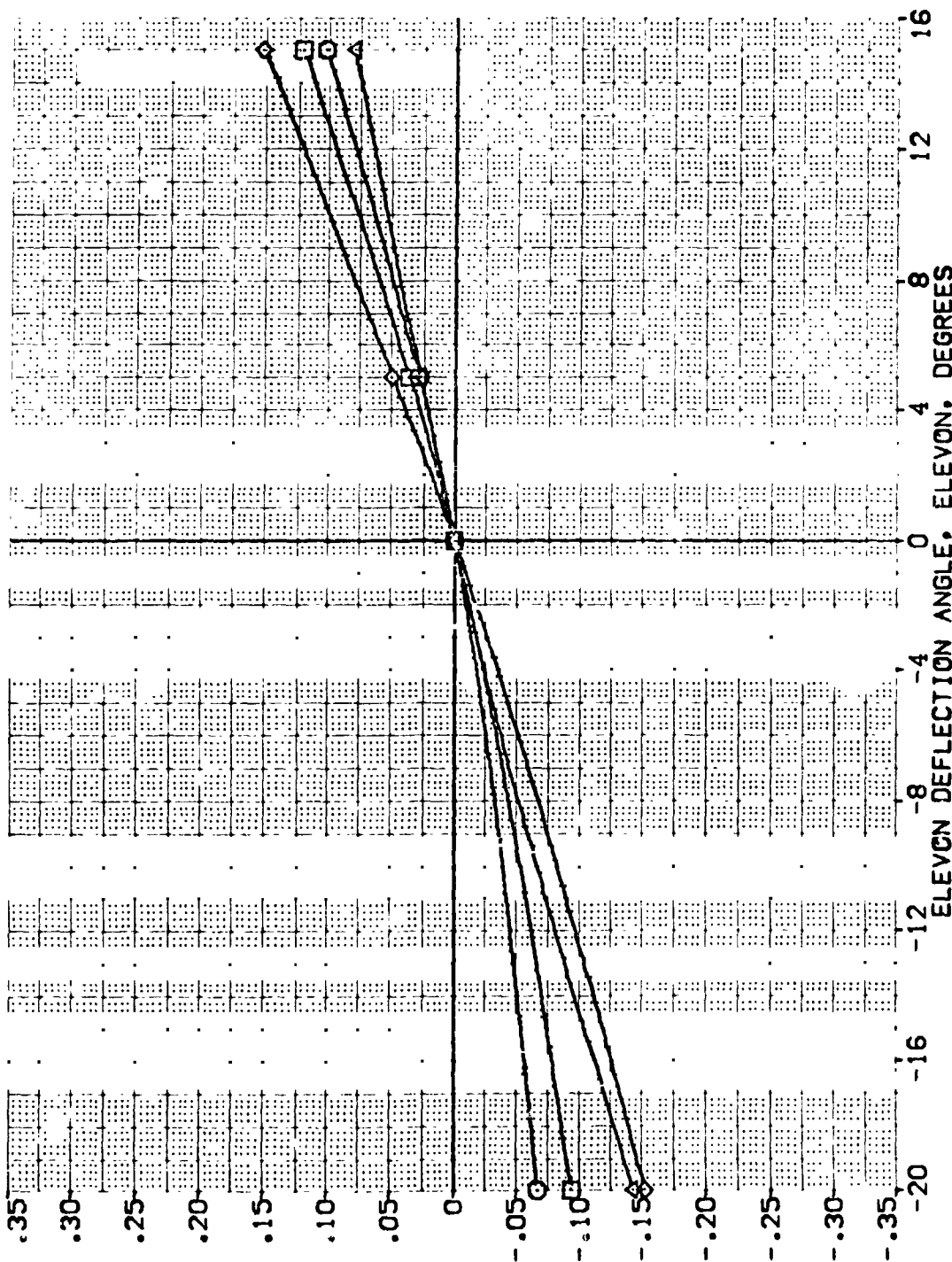


FIG 9 BASELINE ELEVON EFFECTIVENESS, BDFLAP = -11.7 DEG.



(KF5020)

0A110 B61C11F12M51W124E40V19R15X2S

SYMBOL	ALPHA	W/DH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
□	-4.000		.200 AILRON	.000 DATASET	REF 4.4119
◇	.000		-12.000 SPOBRK	25.000 KF5020	REF 19.2259
◇	4.000		.000 BETA	.000 KF5019	REF 37.9359
◇	8.000				REF 43.5974
◇	12.000				REF 10.0000
					REF 15.1875
					SCALE .0405

INCREMENTAL FOREBODY PITCHING MOMENT COEFFICIENT, DCLM

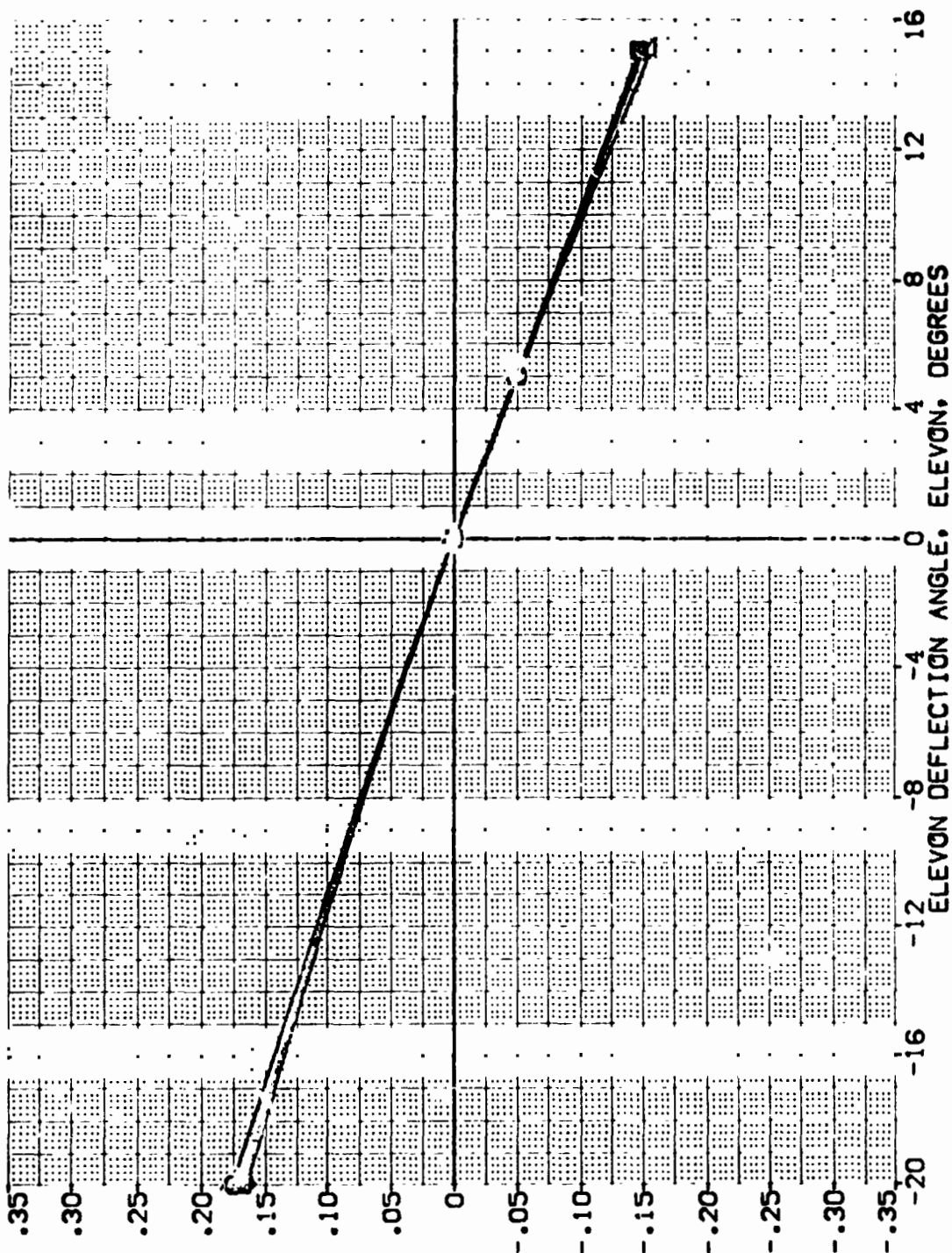


FIG 9 BASELINE ELEVON EFFECTIVENESS, BOFLAP = -11.7 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (KF5020)

SYMBOL	PARAMETRIC VALUES				C-17A SOURCE		REFERENCE INFORMATION			
	ALPHA	MACH	BOFLAP	RUDDER	.000	DATASET	ELEVON	SREF	SO.FT.	
□	16.000				.200	AILRON	-20.000	KF5011	19.2299	
◇	20.000				-12.000	SPOBRK	25.000	KF5020	37.9359	
□	24.000				.000	BETA	.000	KF5019	43.5974	
△	28.000							YTRP	15.0000	
								ZTRP	15.1875	
								SCALE	.0405	
									INDE-S	
									INDE-S	
									INDE-S	
									INDE-S	
									SCALE	

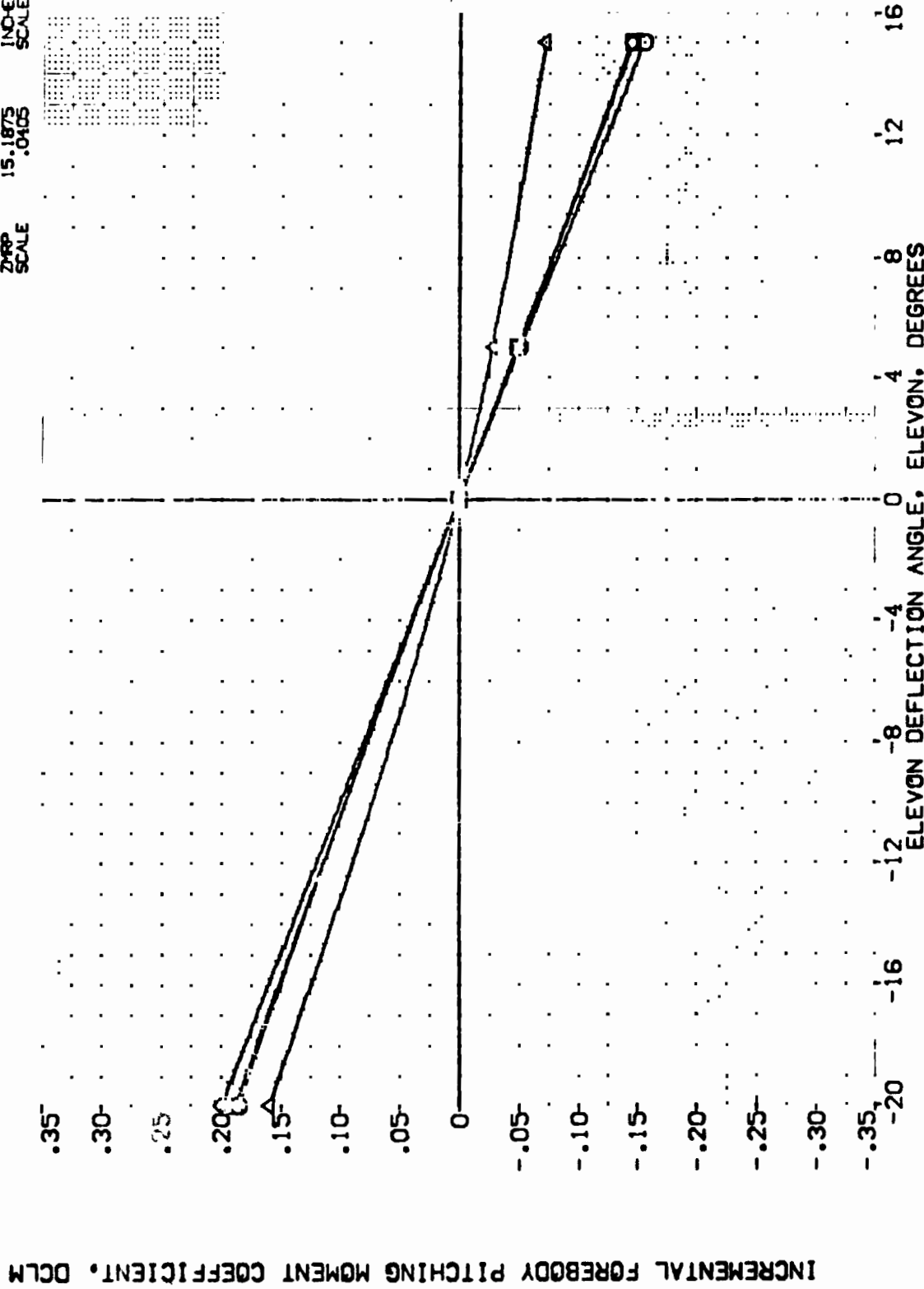


FIG 9 BASELINE ELEVON EFFECTIVENESS, BOFLAP = -11.7 DEG.



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALTRON	SPOBRK	ALPHA	RUDDER	REFERENCE INFORMATION
{R-5024}	0A110 B61C11F12S1V124E40V1SR1S028	.000	.000	10.000	-25.000	SREF 4.4119 50.FT.
{R-5023}	0A110 B61C11F12S1V124E40V1SR1S028	.000	.000	10.000	-20.000	LREF 19.2259 INO-ES
{R-5022}	0A110 B61C11F12S1V124E40V1SR1S028	.000	.000	10.000	-10.000	BREF 37.9359 INO-ES
{R-5021}	0A110 B61C11F12S1V124E40V1SR1S028	.000	.000	10.000	-10.000	YMRP 43.5974 INO-ES
						ZMRP .0000 INO-ES
						SCALE 15.1875 INO-ES

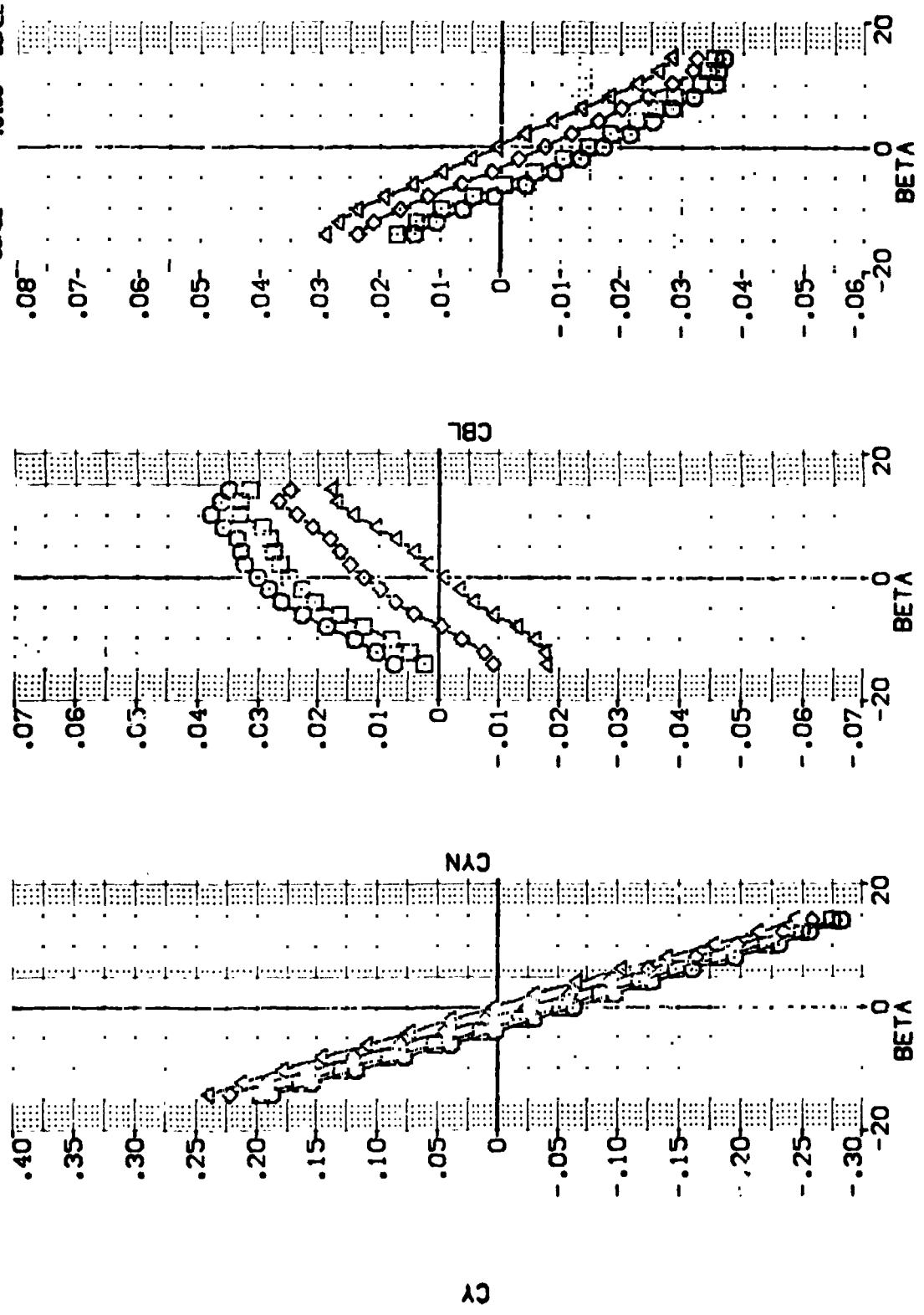


FIG 10 RUDDER EFFECTIVENESS, SPOBRK = 0 DEG., ALPHA = 10 DEG.

CAMMACH = .20

(DF5024)

0A110 B61C11F12M51W124E40V19R15X29

REFERENCE INFORMATION
 4.4119 SO.FT.
 19.2268 INCHES
 37.9359 INCHES
 43.5974 INCHES
 .0000 INCHES
 15.1875 INCHES
 .0405 SCALE

DATA SOURCE
 RUDDER
 -25.000
 -10.000

PARAMETRIC VALUES
 .200 ALPHA
 .000 AILRON
 .000 BOFLAP

DATA SOURCE
 DATASET
 DF5023
 DF5021

DATA SOURCE
 DATASET
 DF5024
 DF5022

DATA SOURCE
 DATASET
 DF5024
 DF5022

DATA SOURCE
 DATASET
 DF5024
 DF5022

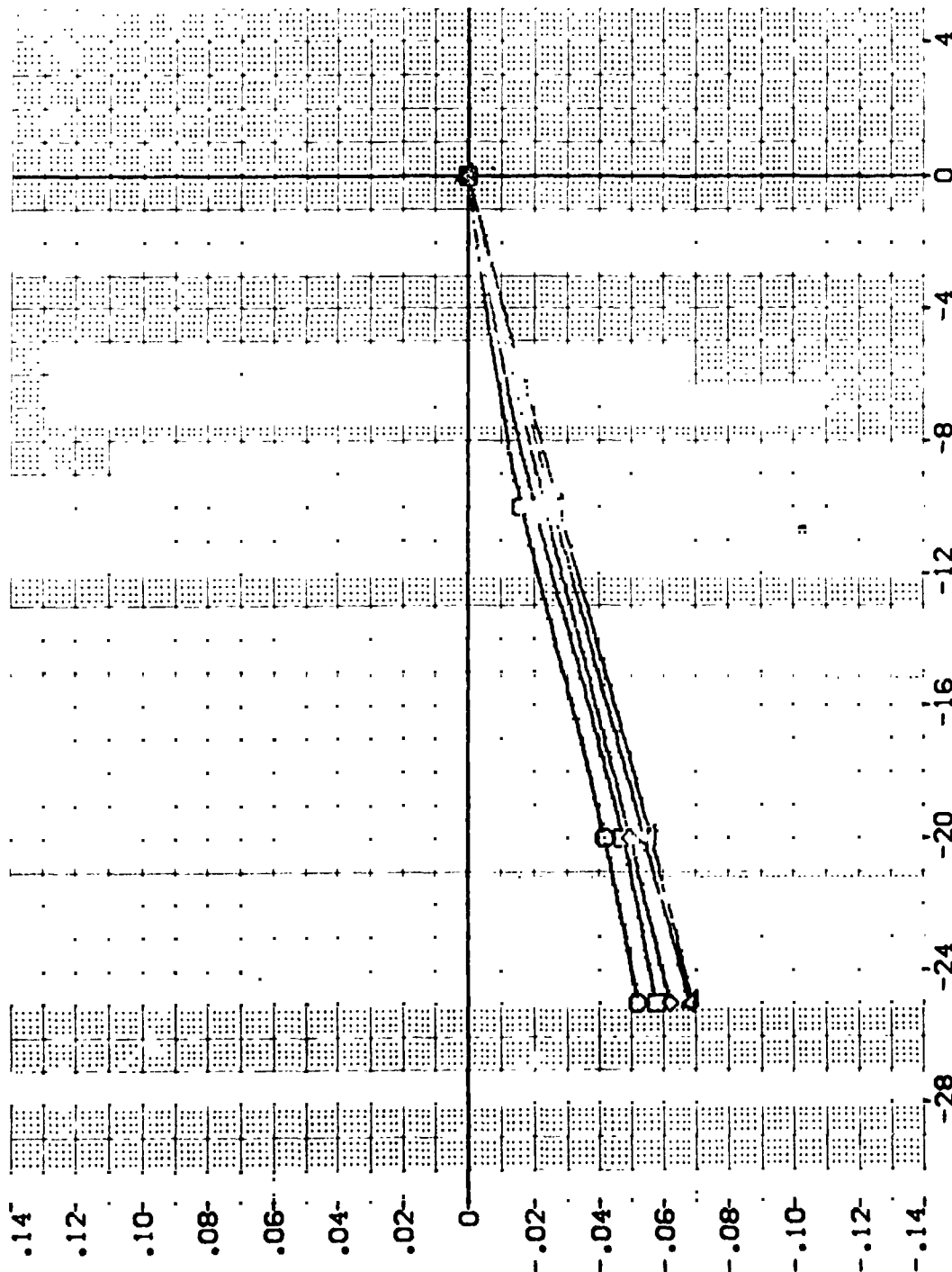


FIG 10 RUDDER EFFECTIVENESS, SPOBRK = 0 DEG., ALPHA = 10 DEG.

{DF5024}

BETA
-4.000
-2.000
.000
2.000
4.000

**WASH
ELEVON
SPOOK**

PARAMETRIC VALUES

DATA SOURCE
BLUDD
-25.000
-19.000

DATASET
DF5023
DF5021

FLUOR
-20,000
,000
SREF
LREF
BREF
XREF
YREF
ZREF
SCALE

REFERENCE INFORMATION

4.4119	50 FT.
19.2219	INCES
37.9359	INCES
43.3574	INCES
.0000	INCES
15.1875	INCES
.0405	INCES

INCREMENTAL SIDE FORCE COEFFICIENT, OCY

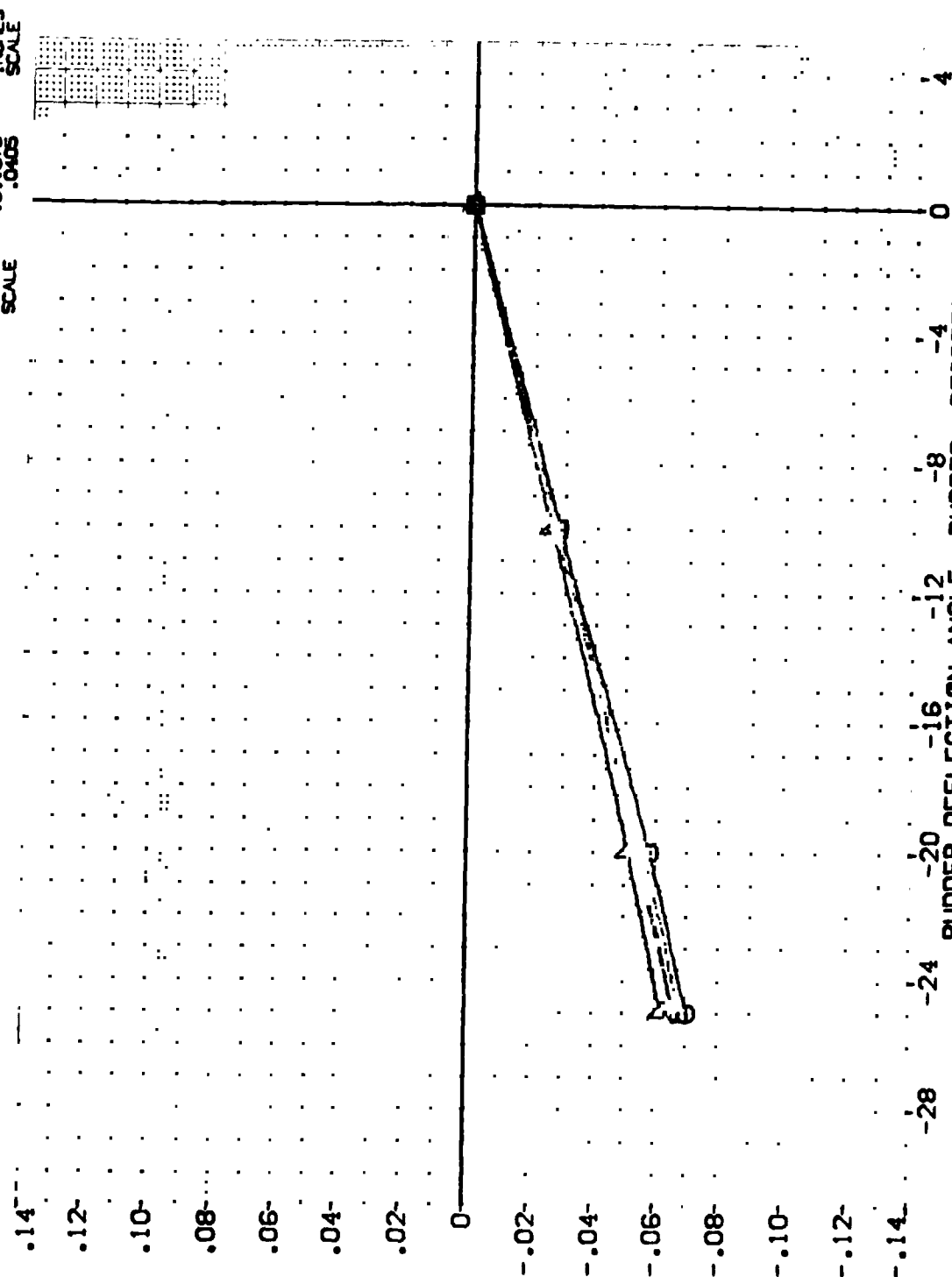


FIG 10 RUDDER EFFECTIVENESS, SPDBRK = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (DF-5024)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	8.000	MACH	.200	ALPHA	10.000	DATASET	10.000	SREF	SO-FT
□	8.000	ELEVON	.000	AILRON	.000	DF-5024	.000	LREF	NO-ES
◇	10.000	SPOBRK	.000	BOFLAP	-12.000	DF-5022	-10.000	BREF	NO-ES
▽	12.000							XPRP	NO-ES
	14.000							YPRP	NO-ES
								ZPRP	NO-ES
								SCALE	SCALE

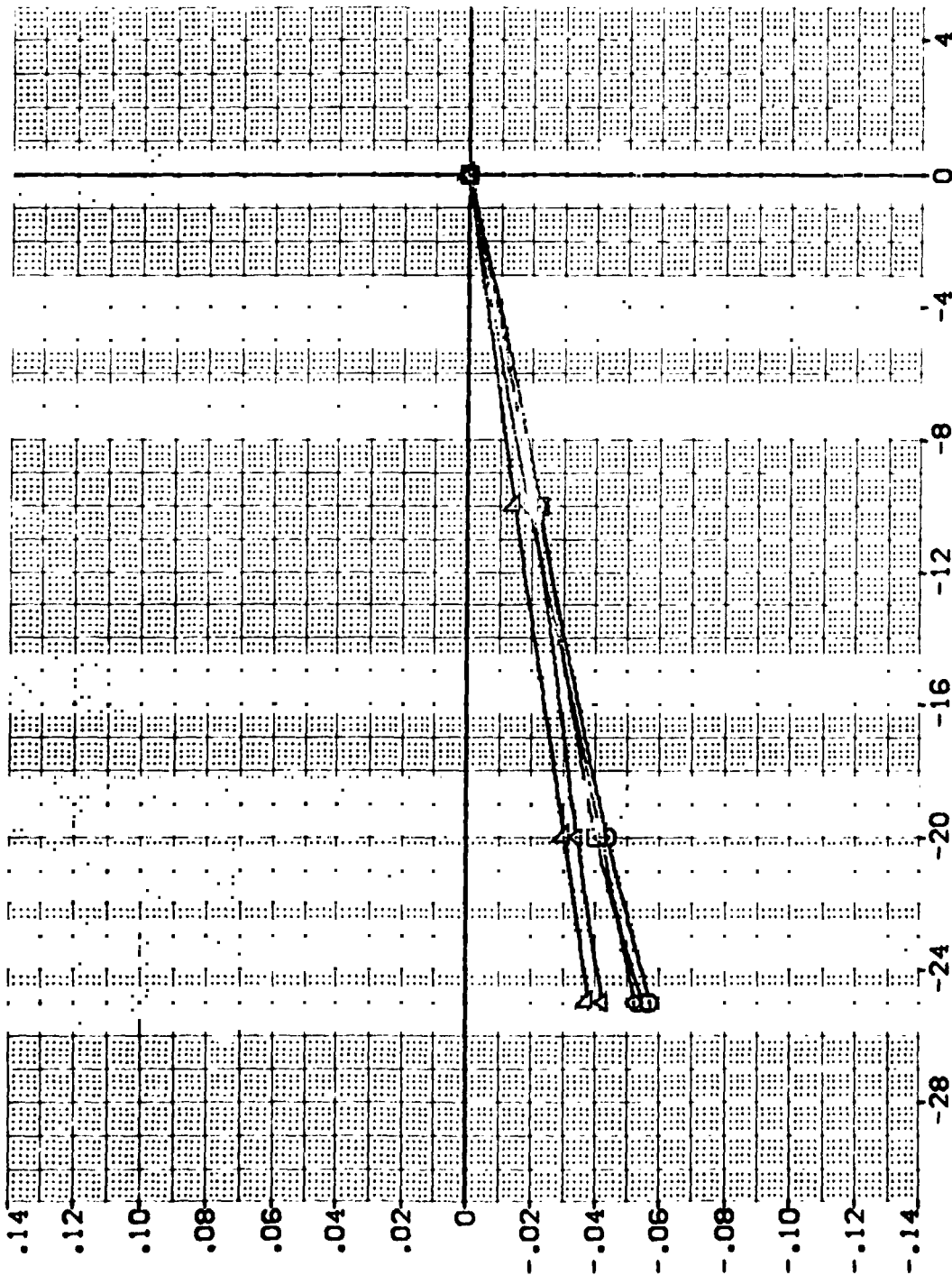


FIG 10 RUDDER EFFECTIVENESS, SPOBRK = 0 DEG., ALPHA = 10 DEG.



(DF5024)

0A110 B61C11F12M51W124E40V19R15X29

PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
BETA	MACH	ALPHA	RUDDER	DATASET	RUDDER	DATASET	RUDDER	REF	SO.FT.	INCHES	SCALE
-14.000	.200	.000	10.000	DF5024	-25.000	DF5023	-20.000	LREF	4.4119	15.2259	INCHES
-12.000	.000	.000	-12.000	DF5022	-10.000	DF5021	.000	BREF	37.9359	43.5974	INCHES
-10.000	.000	.000						YREF	10.000	15.1873	INCHES
-8.000								ZREF			INCHES
-6.000								SCALE			SCALE

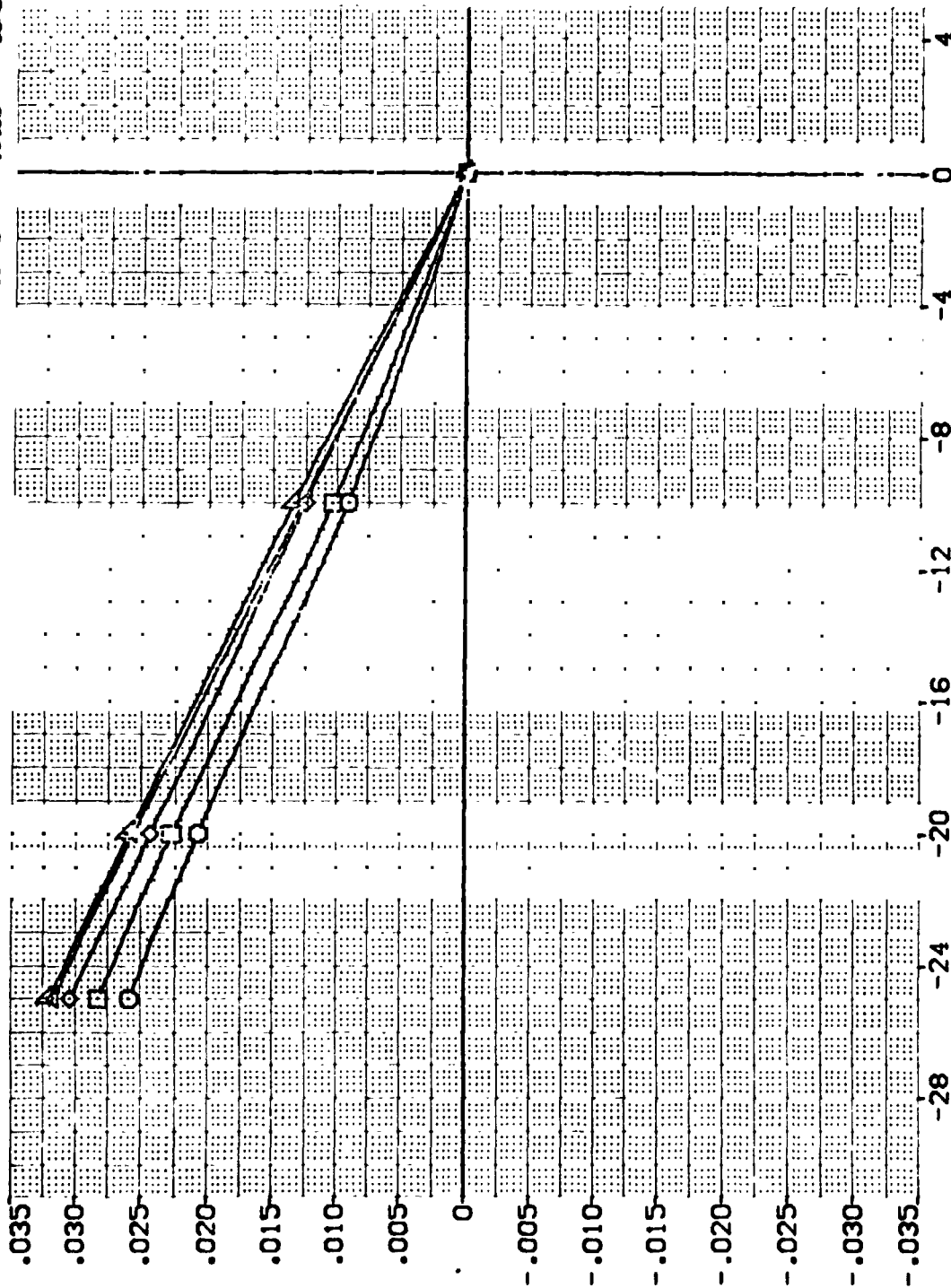


FIG 10 RUDDER EFFECTIVENESS, SPDBRK = 0 DEG., ALPHA = 10 DEG.

0A110 861C11F12M51W124E40V19R15X29 (DF5024)

SYMBOL			BETA			PARAMETRIC VALUES			DATA SOURCE			REFERENCE INFORMATION		
○	□	◇	-1.000	MACH	.200	ALPHA	10.000	DATASET	RUDDER	DATASET	RUDDER	SREF	4.4119	SO.FT.
□	◇	△	-2.000	ELEVON	.000	ALURON	.000	DF5024	-25.000	DF5023	-20.000	LREF	19.2259	INCHES
△	▽	▽	.000	SPOBRK	.000	BDFLAP	-12.000	DF5022	-10.000	DF5021	.000	BREF	37.9359	INCHES
▽	▽	▽	2.000									YREF	43.5974	INCHES
▽	▽	▽	4.000									ZREF	.0000	INCHES
												ZREF	15.1875	INCHES
												SCALE	.0405	SCALE

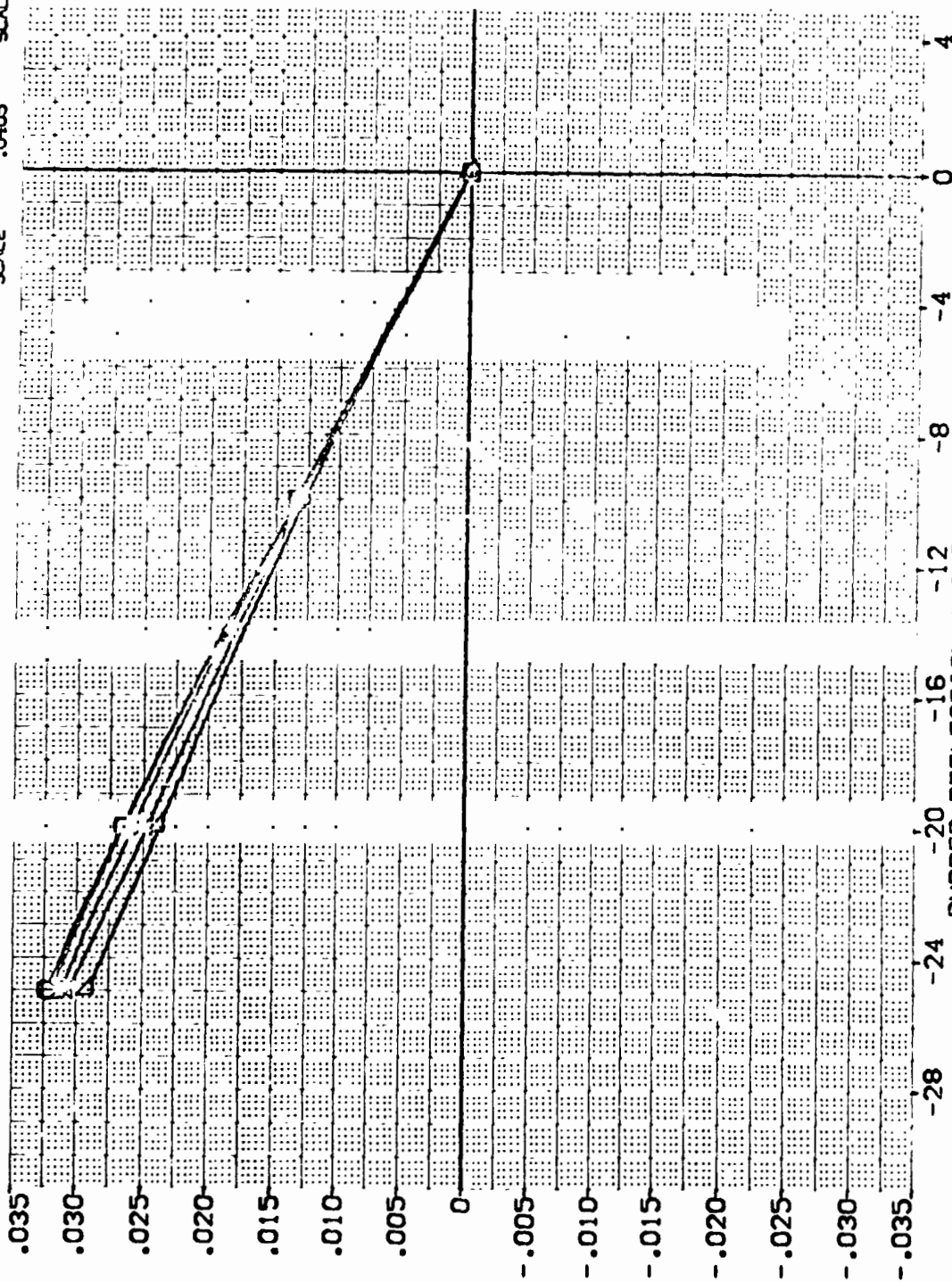


FIG 10 RUDDER EFFECTIVENESS, SPOBRK = 0 DEG., ALPHA = 10 DEG.



0A110 B61C11F12M51W124E40V19R15X29

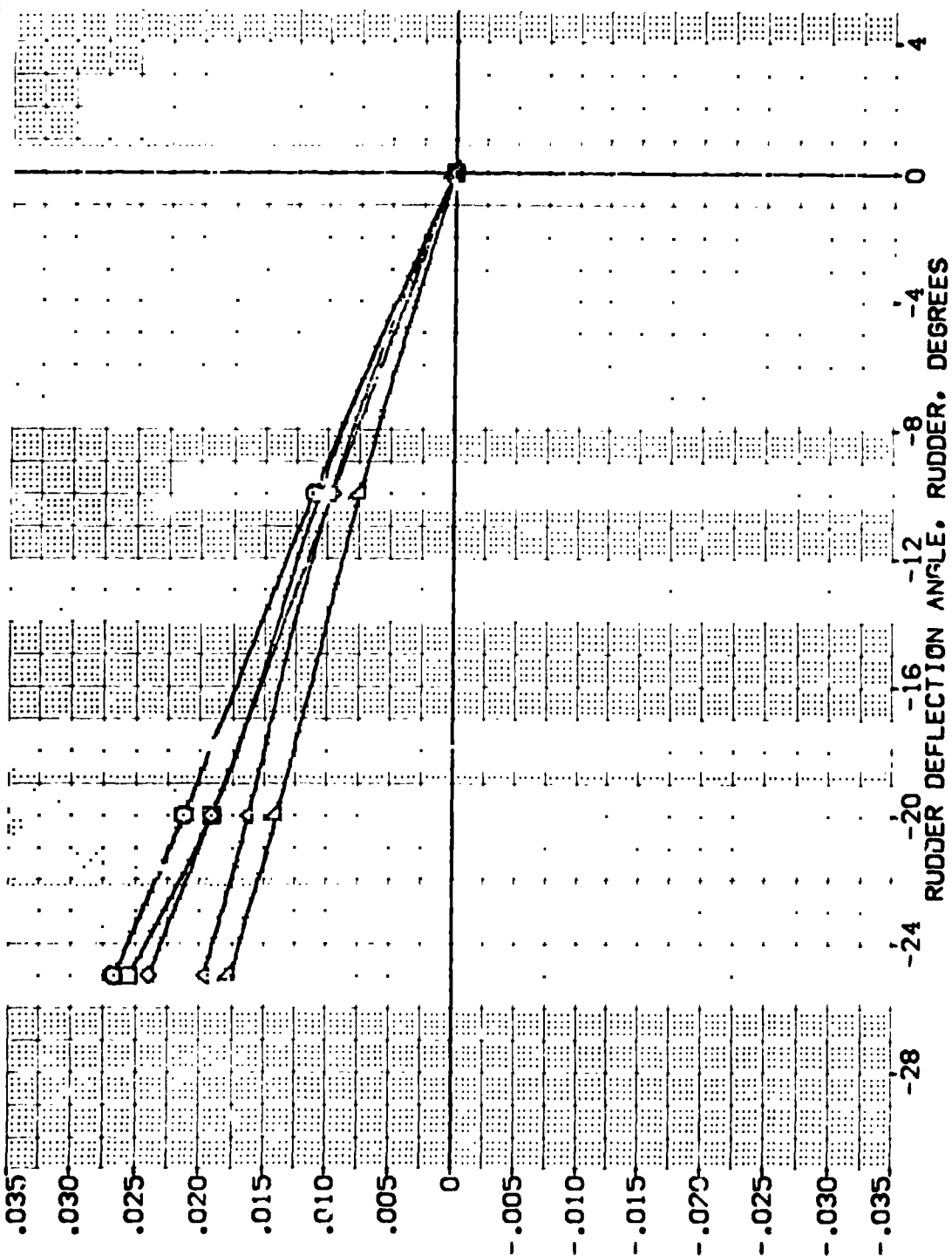
[illegible]

FIG 10 RUDDER EFFECTIVENESS, SPDBRK = 0 DEG., ALPHA = 10 DEG.

0A110 861C11F12M51W124E40V19R15X29 (0F5024)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	RUDDER	RUDDER	REFERENCE INFORMATION
○	-14.000	.200	ALPHA	10.000	DF5024	DF5023	SREF
□	-12.000	.000	AILRON	.000	DF5024	DF5023	LREF
◇	-10.000	.000	BOFLAP	-12.000	DF5022	DF5021	BREF
△	-8.000						XREF
▽	-6.000						YREF
							ZREF
							SCALE
							4.4119
							19.2299
							37.9359
							43.5974
							.0000
							15.1875
							.0405

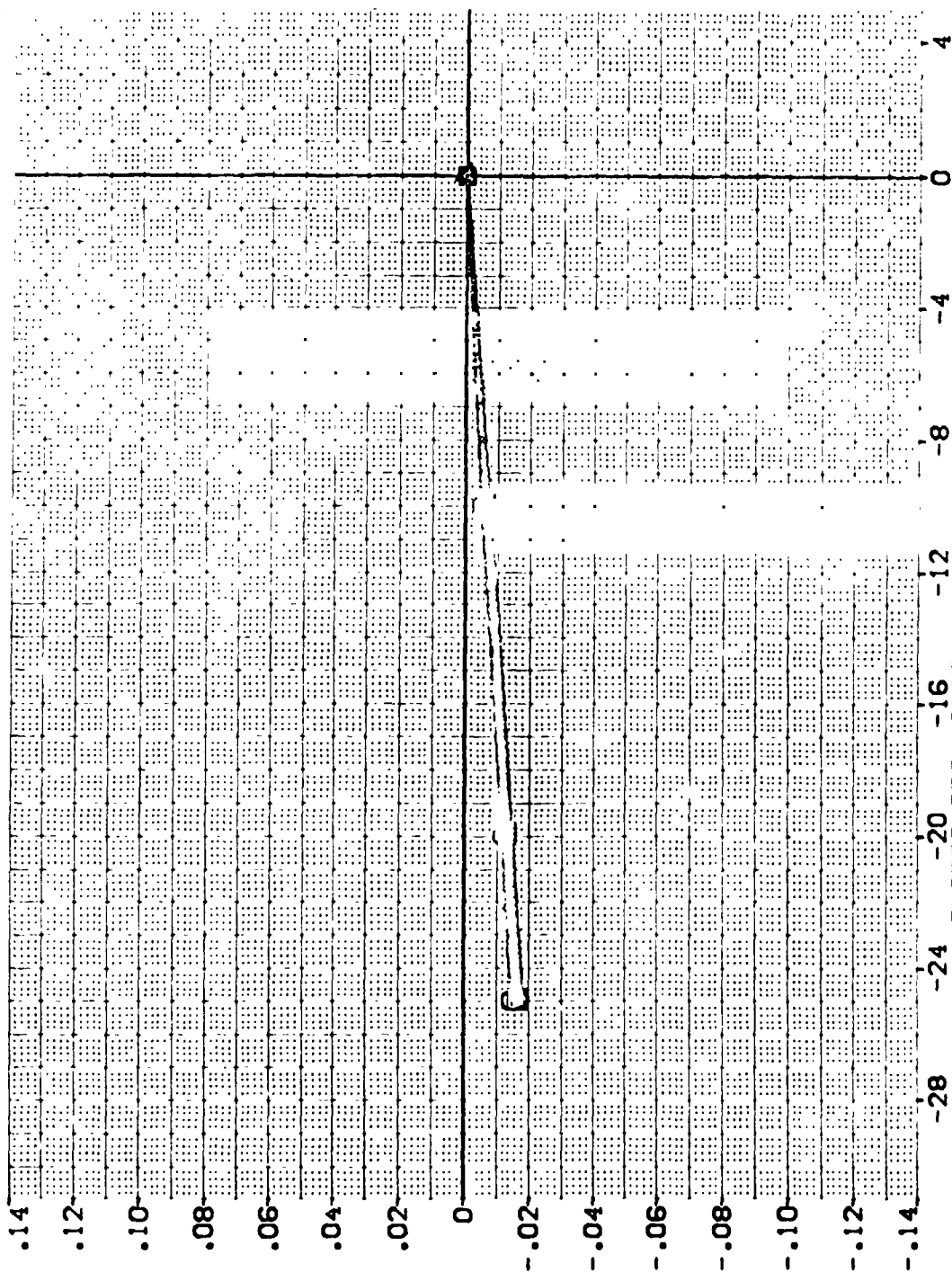


FIG 10 RUDDER EFFECTIVENESS, SPDBRK = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (OF5024)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	□	△	▽	MACH	ALPHA	RUDDER	DATA SET	SREF	80 FT.
				ELEVON	AILRON	-25.000	DF5023	LRZF	IN-ES
				SPOBRK	EDFLAP	-10.000	DF5021	BRZF	IN-ES
								YPRP	IN-ES
								ZPRP	IN-ES
								SCALE	SCALE

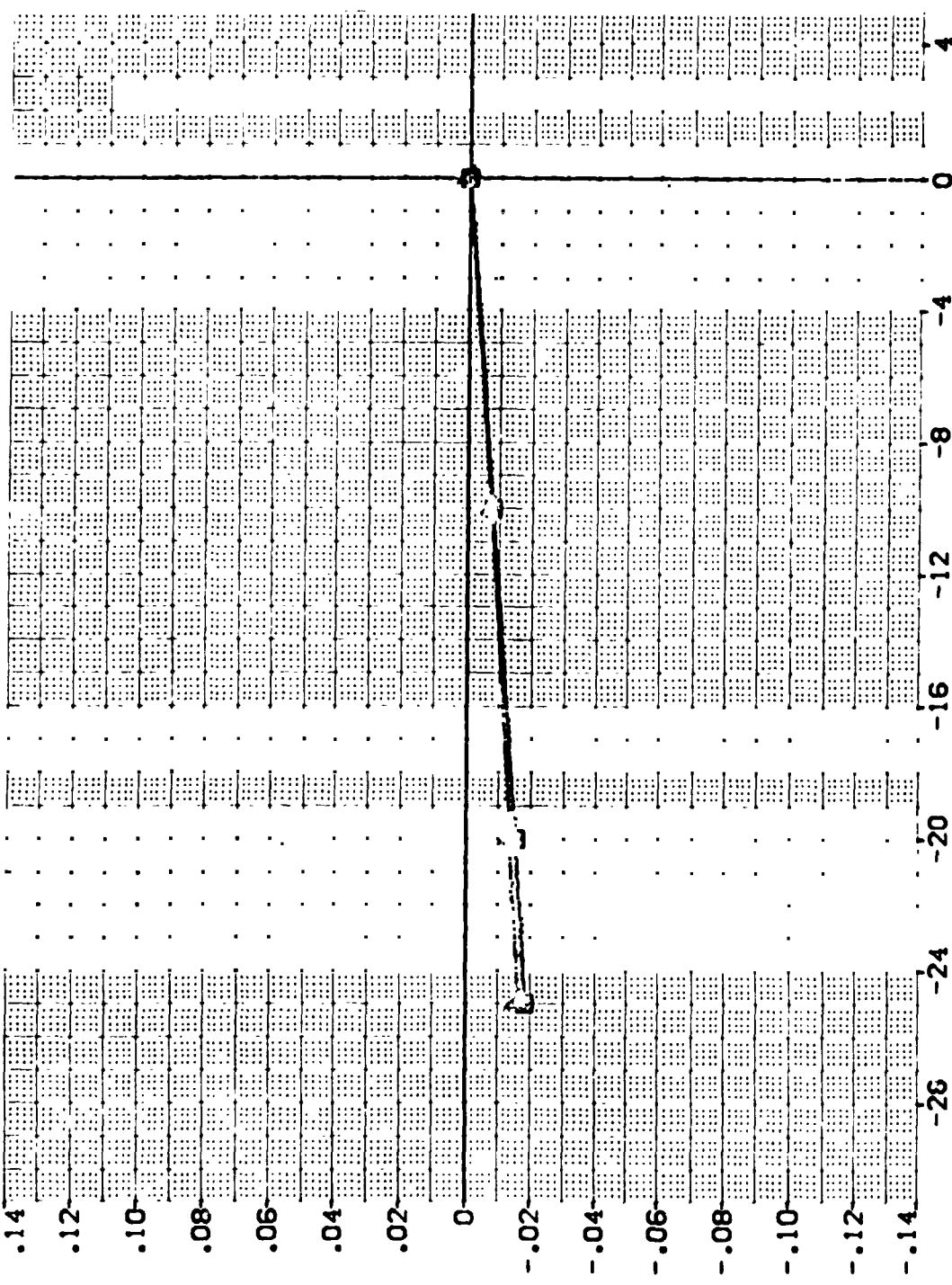
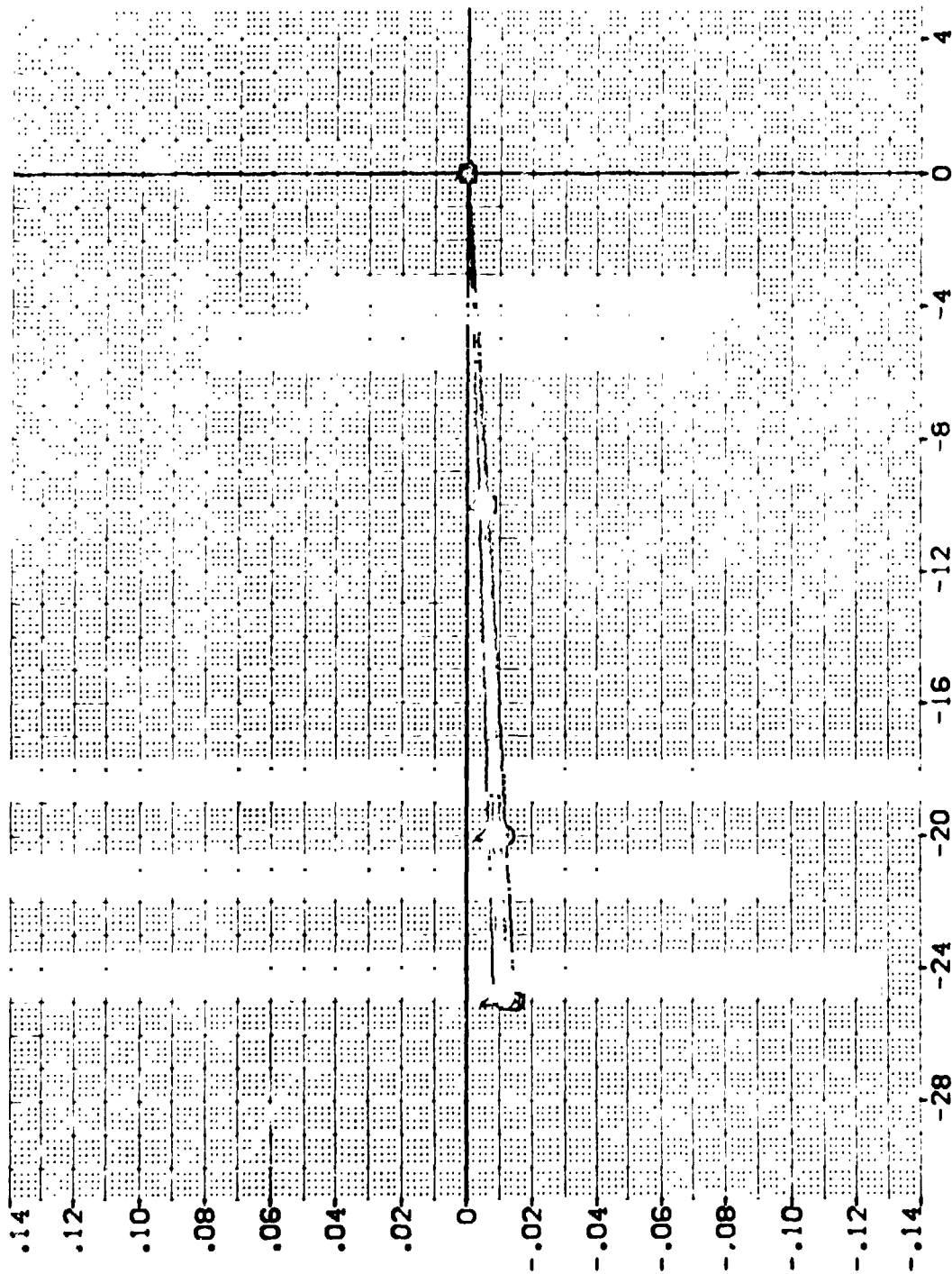


FIG 10 RUDDER EFFECTIVENESS, SPOBRK = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (DF5024)

SYMBOL	BETA	DATA	PARAMETRIC VALUES	DATA SOURCE	RUDDER	RUDDER	DATA SET	REFERENCE INFORMATION
○	6.000	MACH	.200	ALPHA	10.000	DF5024	DF5023	4.4119
□	8.000	ELEVON	.000	AILRON	.000	DF5024	DF5023	19.2299
◇	10.000	SPOBRK	.000	BOFLAP	-12.000	DF5022	DF5021	37.9359
△	12.000							43.5971
	14.000							.0000
								15.1875
								.0405
								SCALE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	SPDRBK	AIRLON	REFERENCE INFORMATION
(R-5028)	0A110 BSIC1F126S1V124E40V18R15C28	10.000	-25.000	25.000	.000	SREF 4.4119 SQ.FT.
(R-5029)	0A110 BSIC1F126S1V124E40V18R15C28	10.000	-20.000	25.000	.000	LREF 19.2289 INO-ES
(R-5027)	0A110 BSIC1F126S1V124E40V18R15C28	10.000	-10.000	25.000	.000	BREF 37.9358 INO-ES
(R-5026)	0A110 BSIC1F126S1V124E40V18R15C28	10.000	.000	25.000	.000	XREF 43.5874 INO-ES
						YREF .0000 INO-ES
						ZREF 15.1875 INO-ES
						SCALE .0405

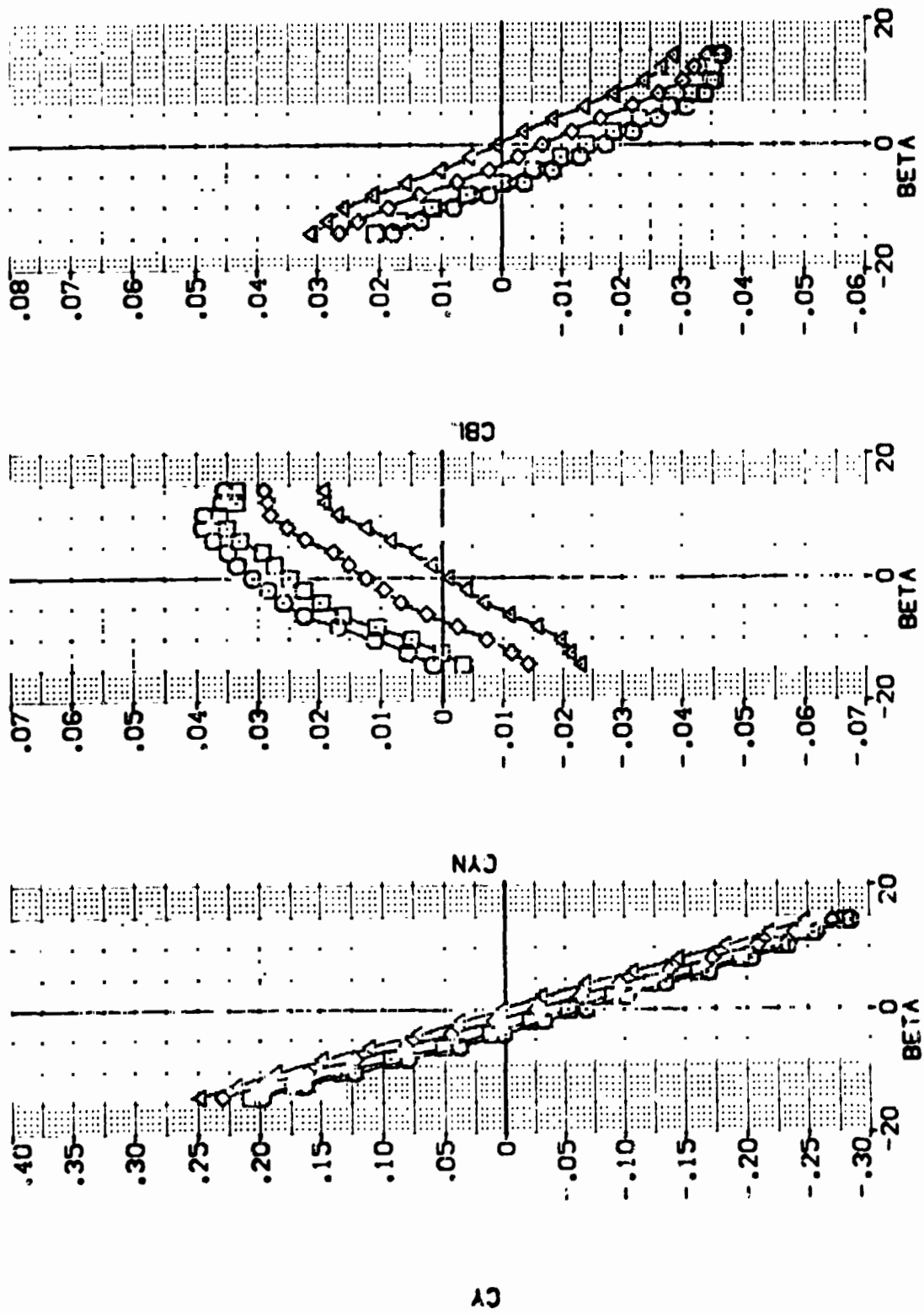


FIG 11 RUDDER EFFECTIVENESS, SPDRBK = 25 DEG., ALPHA = 10 DEG.
 (A)MACH = .20

(OF 5025)

0A110 B61C11F12M51W124E40V19R15X29

PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA	MACH	ALPHA	BOFLAP	RUDDER	DATASET	RUDDER	SCALE	UNIT	INCHES
-14.000	.200	.000	25.000	-25.000	DF5026	-20.000	19.2299	SOFT	INCHES
-12.000	ELEVON	ALTRON	BOFLAP	-10.000	DF5027	.000	37.9359	REF	INCHES
-10.000	SPDRK						43.5974	YMRP	INCHES
-8.000							.0000	ZMRP	INCHES
-6.000							15.1875	SCALE	INCHES

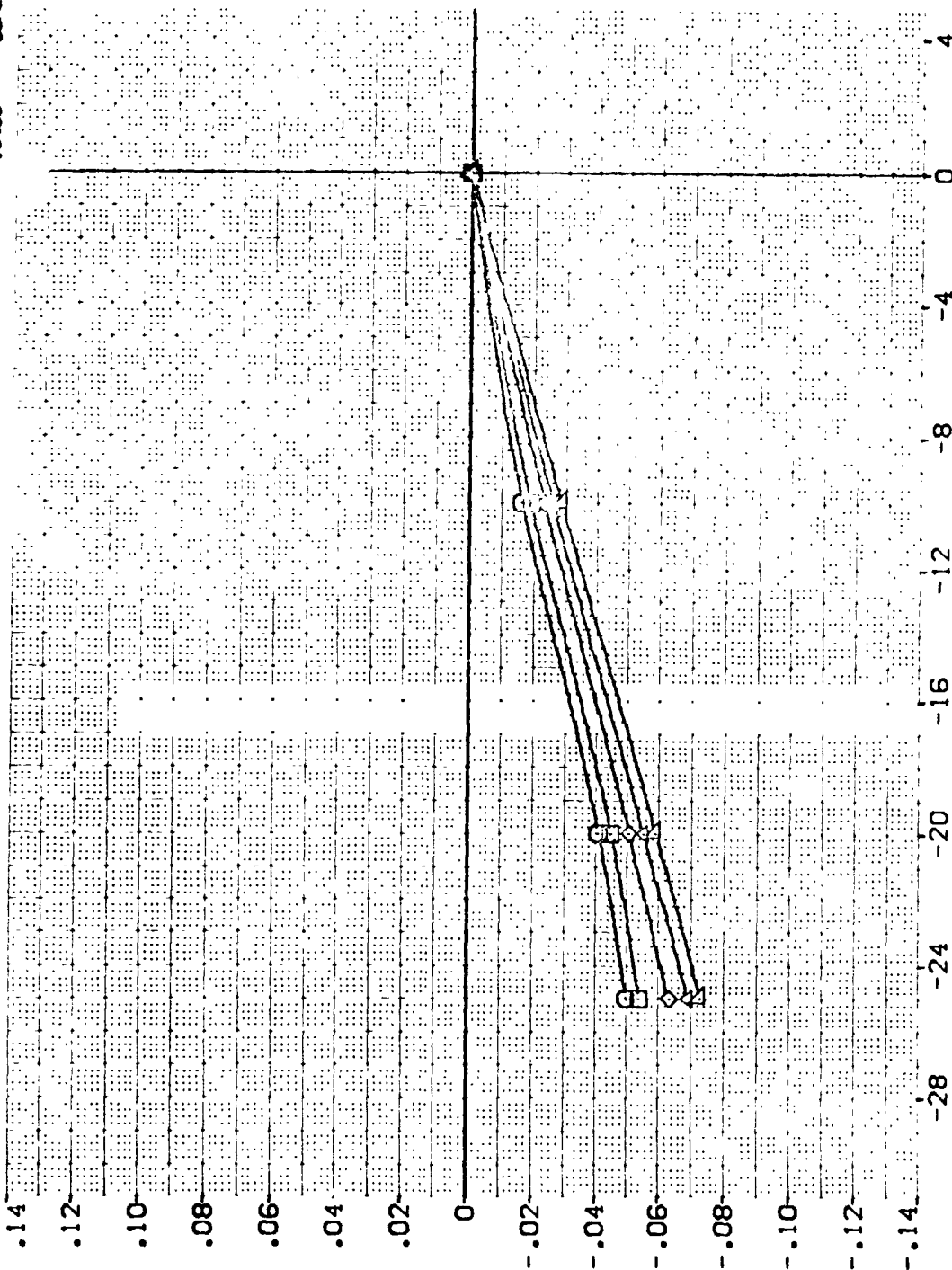


FIG 11 RUDDER EFFECTIVENESS, SPDRK = 25 DEG., ALPHA = 10 DEG.

(OF5025)

0A110 361C11F12M51W124E40V19R15X29

SYMBOL		BETA		MACH		ELEVON		SPOBRK		PARAMETRIC VALUES		DATA SOURCE		DATASET		RUDDER		SREF		REFERENCE INFORMATION	
○		-4.000								.200	ALPHA	10.000	DATASET	DF5026		-20.000		4.4119		50.FT.	
□		-2.000								.000	AILRON	-12.000	DATASET	DF5025		-25.000		19.2259		INO-ES	
△		.000								.000	BOFLAP	-10.000	DATASET	DF5027		-10.000		37.9359		INO-ES	
▽		2.000								25.000								43.5974		INO-ES	
																		YMRP		INO-ES	
																		ZMRP		INO-ES	
																		SCALE		SCALE	

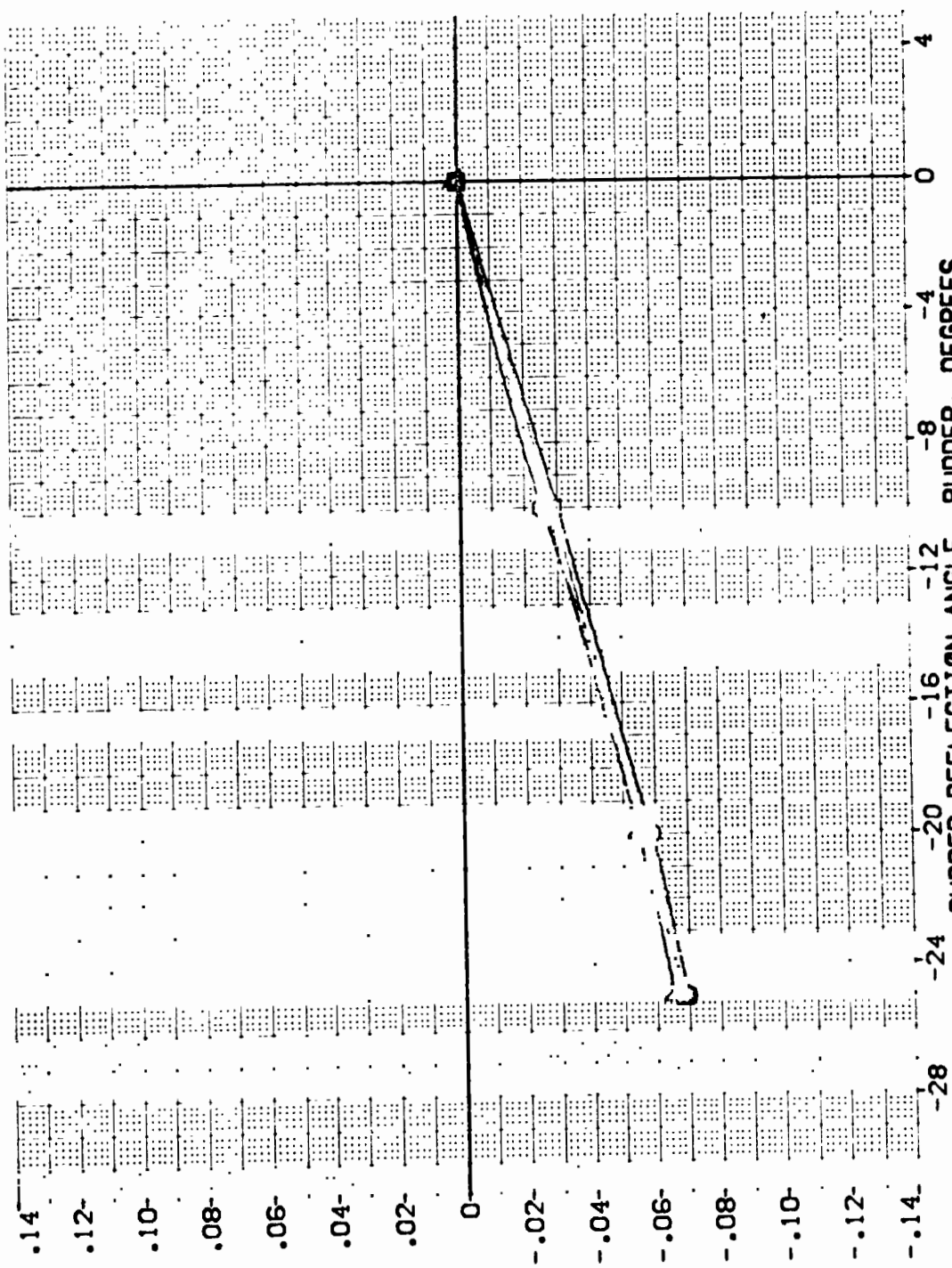


FIG 11 RUDDER EFFECTIVENESS, SPOBRK = 25 DEG., ALPHA = 10 DEG.

(DF5025)

0A110 861C11F12M51W124E40V19R15X29

SYMBOL	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
	BETA	MACH	ALPHA	AILRON	10.000	DF5025	RUDDER	DF5026	RUDDER	SREF	4.4119	50. FT
○	6.000	ELEVON	.200	AILRON	.000	DF5025	-25.000	DF5026	-20.000	LOEF	19.7299	INCHES
□	8.000	SPDBRK	.000	BDFLAP	-12.000	DF5027	-10.000	DF5028	.000	BREF	37.5359	INCHES
◇	10.000		25.000							YMRP	43.5974	INCHES
△	12.000									ZMRP	.0000	INCHES
▽	14.000									SCALE	15.1875	INCHES
											.0405	SCALE

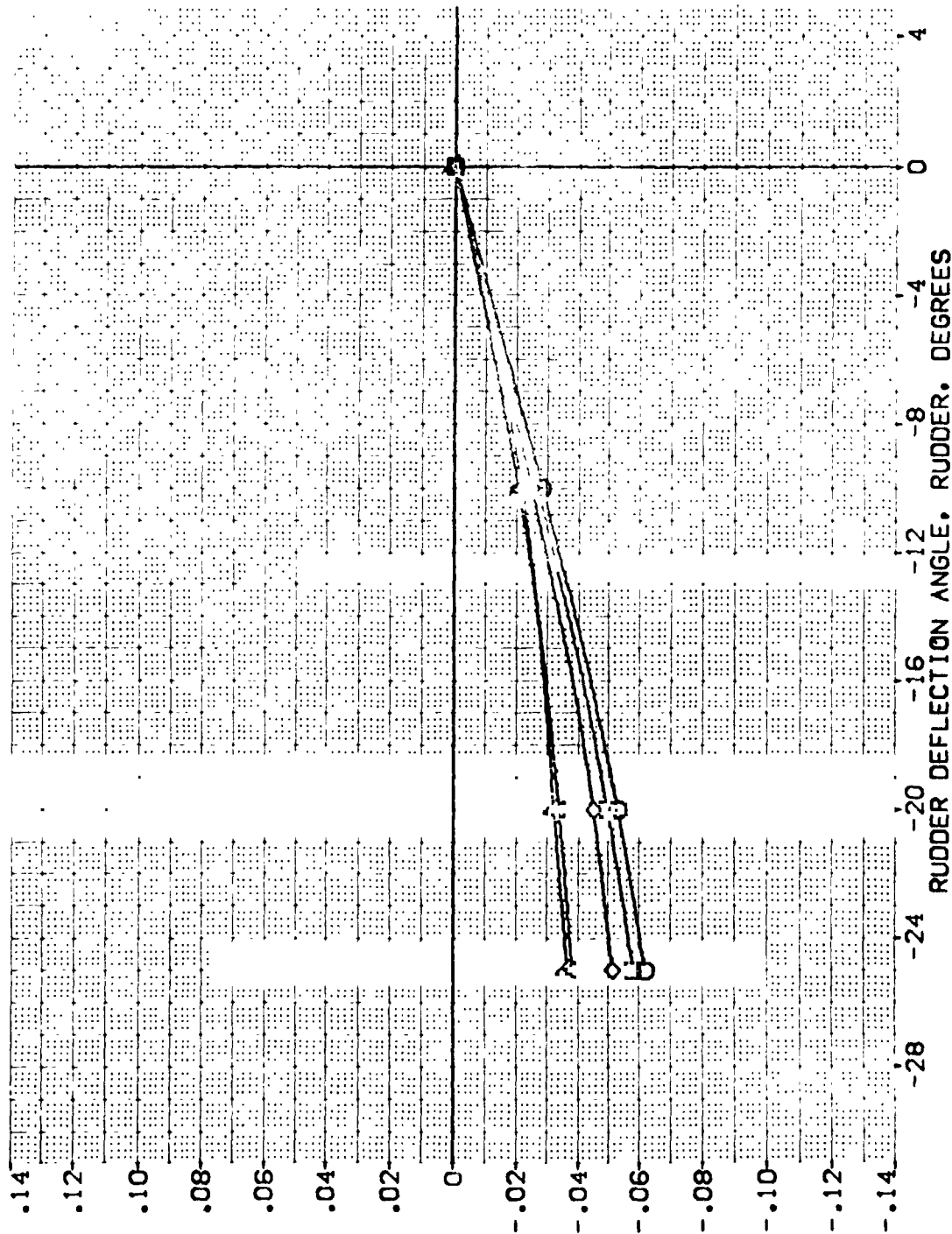


FIG 11 RUDDER EFFECTIVENESS, SPDBRK = 25 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (DF5025)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
BETA	MACH	10.000	RUDDER	SREF	SO.FT.
-14.000	.200	.000	-25.000	19.2799	19.2799
-12.000	.000	.000	-10.000	37.9359	37.9359
-10.000	25.000	-12.000	.000	43.5974	43.5974
-8.000				15.1675	15.1675
				.0405	.0405

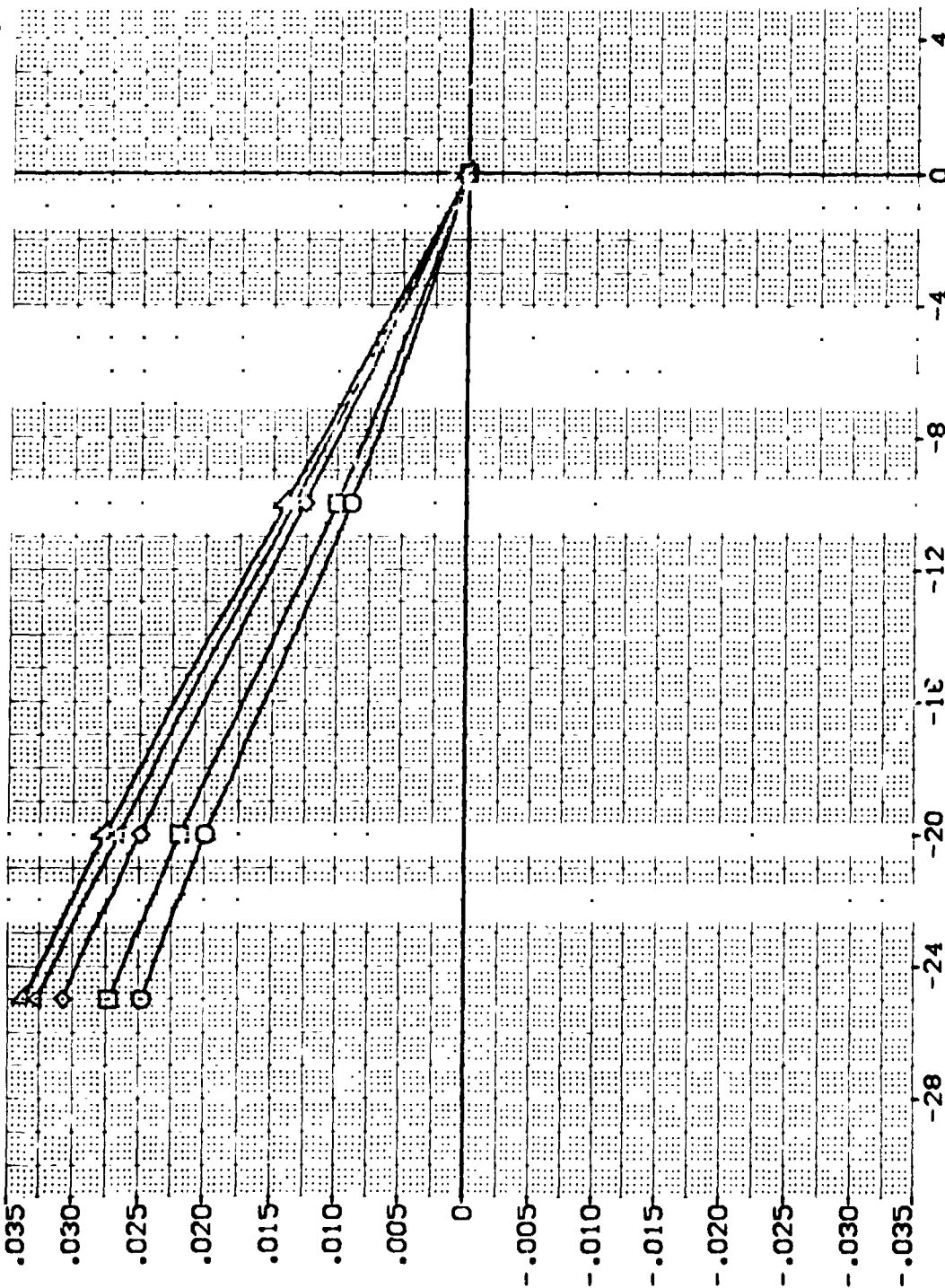


FIG 11 RUDDER EFFECTIVENESS, SPOBRK = 25 DEG., ALPHA = 10 DEG.

(DF5025)

0A110 B61C11F12M51W124E4DV19R15X29

SYMBOL	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
	BETA	MACH	ALPHA	AILRON	10.000	DATA SET	RUDDER	RUDDER	SREF	4.4119	50. FT.	
○	-4.000		.200		.000	DF5025	-25.000	-20.000	LREF	19.2298	INCHES	
□	-2.000	ELEVON	.000	AILRON	-12.000	DF5027	-10.000	.000	BREF	37.9369	INCHES	
◇	.000	SPDBRK	25.000	BDFLAP					XPRP	43.5874	INCHES	
△	2.000								YPRP	.0000	INCHES	
	4.000								ZPRP	15.1875	INCHES	
									SCALE	.0405	SCALE	

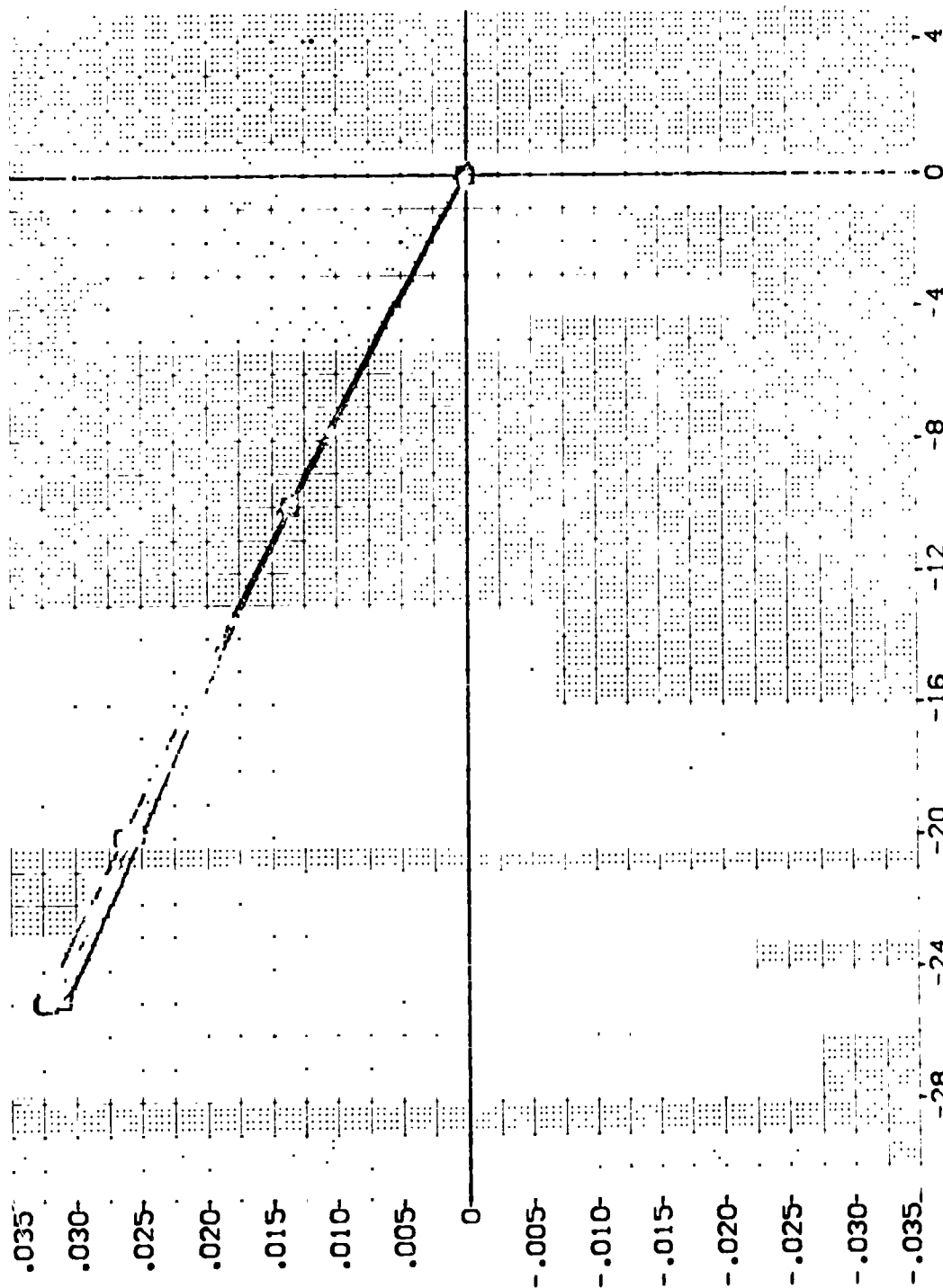


FIG 11 RUDDER EFFECTIVENESS, SPDBRK = 25 DEG., ALPHA = 10 DEG.

(DF5025)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL	BETA	MACH	PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION	
			.200	ALPHA	10.000	DATASET	RUDDER	SREF	SO.FT.
○	6.000	ELEVON	.000	AILRON	.000	DF5025	-20.000	REF	19.2799
□	8.000	SPOBRK	25.000	BDPLAP	-12.000	DF5027	.000	REF	37.5539
◇	10.000							REF	43.5574
△	12.000							REF	.0000
	14.000							REF	15.1875
								SCALE	.0405

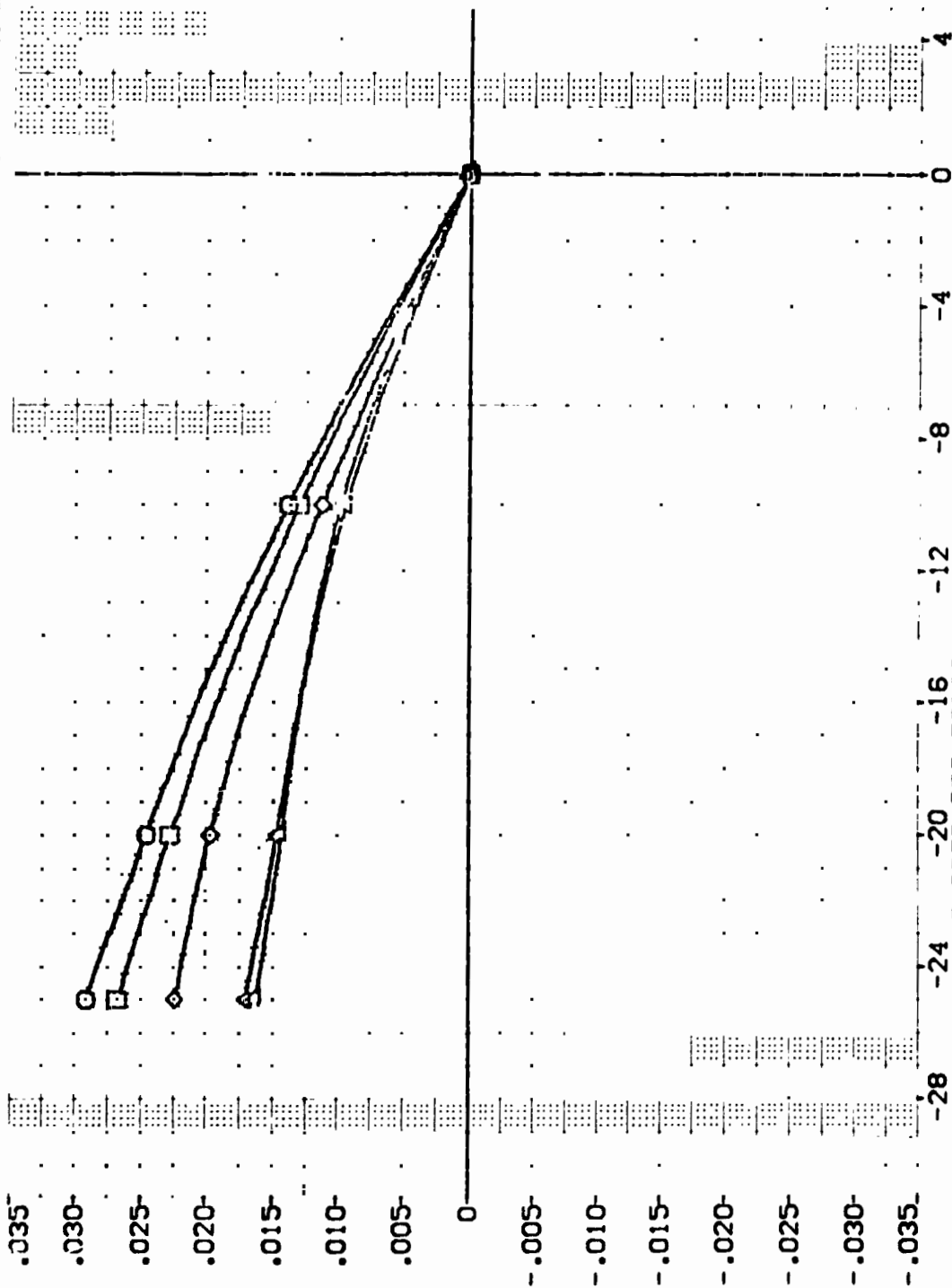


FIG 11 RUDDER EFFECTIVENESS, SPOBRK = 25 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29

(DF5025)

SYMBOL		PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
BETA		MACH	ALPHA	10.000	DATASET	RUDDER	DATASET	RUDDER	SREF	4.4119	50. FT.		
	○	ELEVON	.000	.000	DF5025	-25.000	DF5026	-20.000	LREF	19.2299	INCHES		
	□	SPDBRK	25.000	-12.000	DF5027	-10.000	DF5028	.000	BREF	37.9369	INCHES		
	◇								XPRP	43.5974	INCHES		
	△								YPRP	.0000	INCHES		
	▽								ZPRP	15.1875	INCHES		
									SCALE	.0405	SCALE		

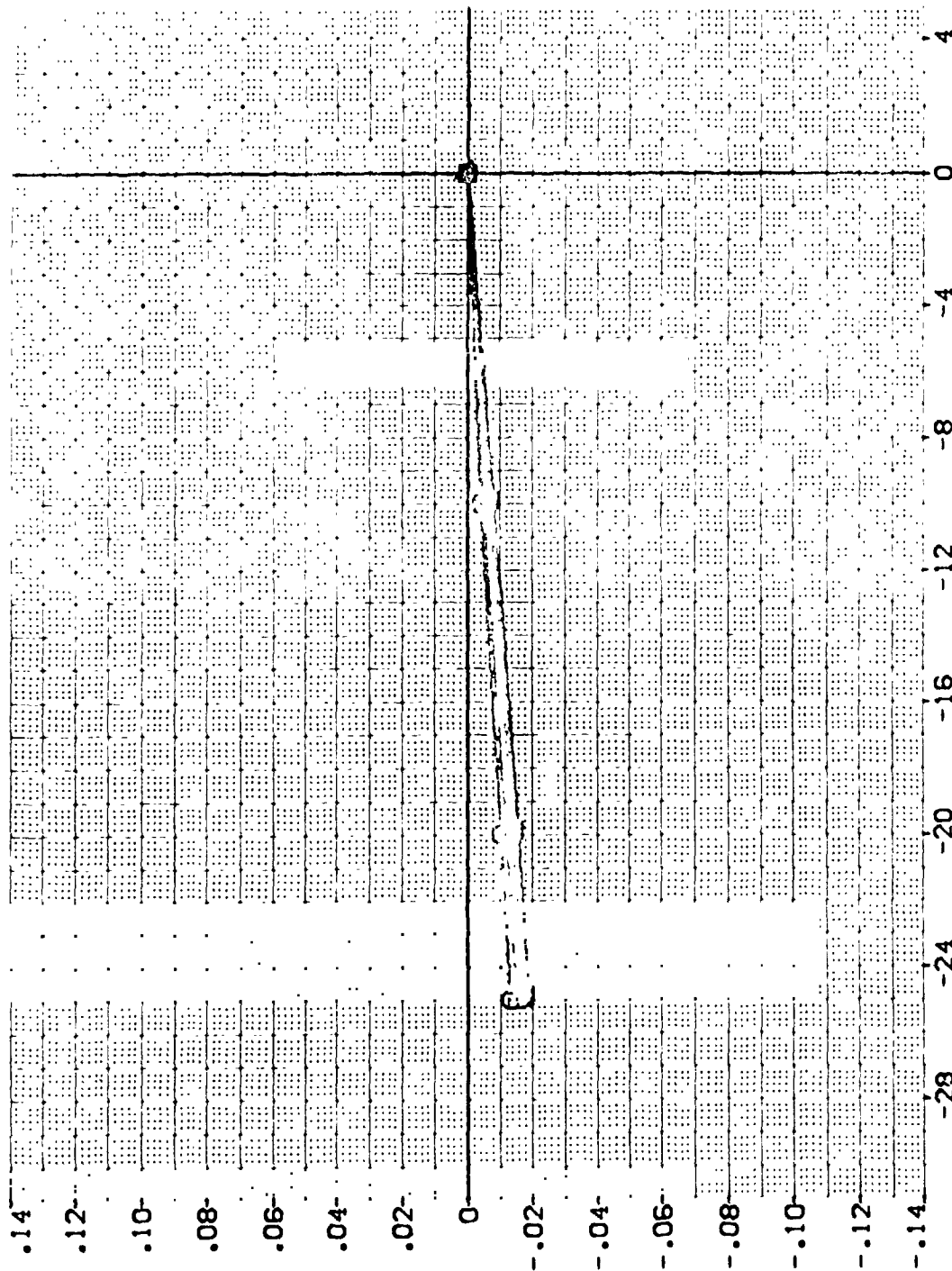


FIG 11 RUDDER EFFECTIVENESS, SPDBRK = 25 DEG., ALPHA = 10 DEG.

INCREMENTAL ROLLING MOMENT COEFFICIENT, DCBL

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA		MACH	ALPHA	10.000	DATASET	RUDDER	DATASET	RUDDER	SREF	4.4119	50. FT.
-4.000		ELEVON	.000	.000	DF5025	-25.000	DF5026	-20.000	LREF	19.2259	IN-ES
-2.000		SPDBRK	25.000	-12.000	DF5027	-10.000	DF5028	.000	BREF	37.9359	IN-ES
.000									XPRP	43.5974	IN-ES
2.000									YPRP	.0000	IN-ES
4.000									ZPRP	15.1673	IN-ES
									SCALE	.0405	SCALE

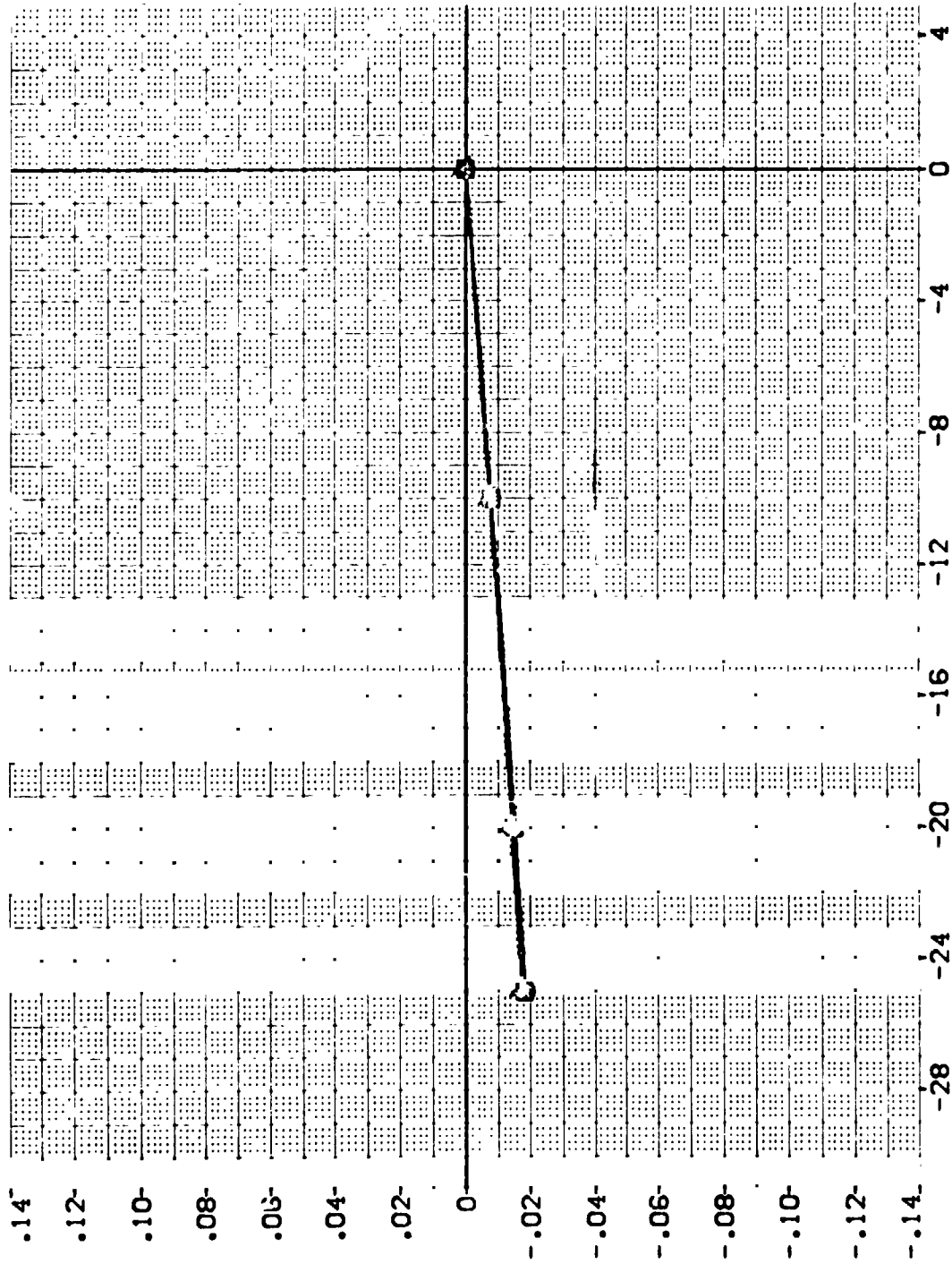


FIG 11 RUDDER EFFECTIVENESS, SPDBRK = 25 DEG., ALPHA = 10 DEG.

(OF5025)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	DATA SET	RUDDER	RUDDER	SREF	REFERENCE INFORMATION
○	6.000		.200 ALPHA	10.000	D-5025	-25.000	DF5026	LREF	4.4119 IN-O-E-S
□	8.000		.000 AILRON	.000	D-5025	-10.000	DF5028	BREF	19.2299 IN-O-E-S
◇	10.000		25.000 BOFLAP	-12.000	DF-5027			XREF	37.9359 IN-O-E-S
△	12.000							YREF	43.5874 IN-O-E-S
▽	14.000							ZREF	.0000 IN-O-E-S
								SCALE	15.1875 IN-O-E-S
								SCALE	.0405 SCALE

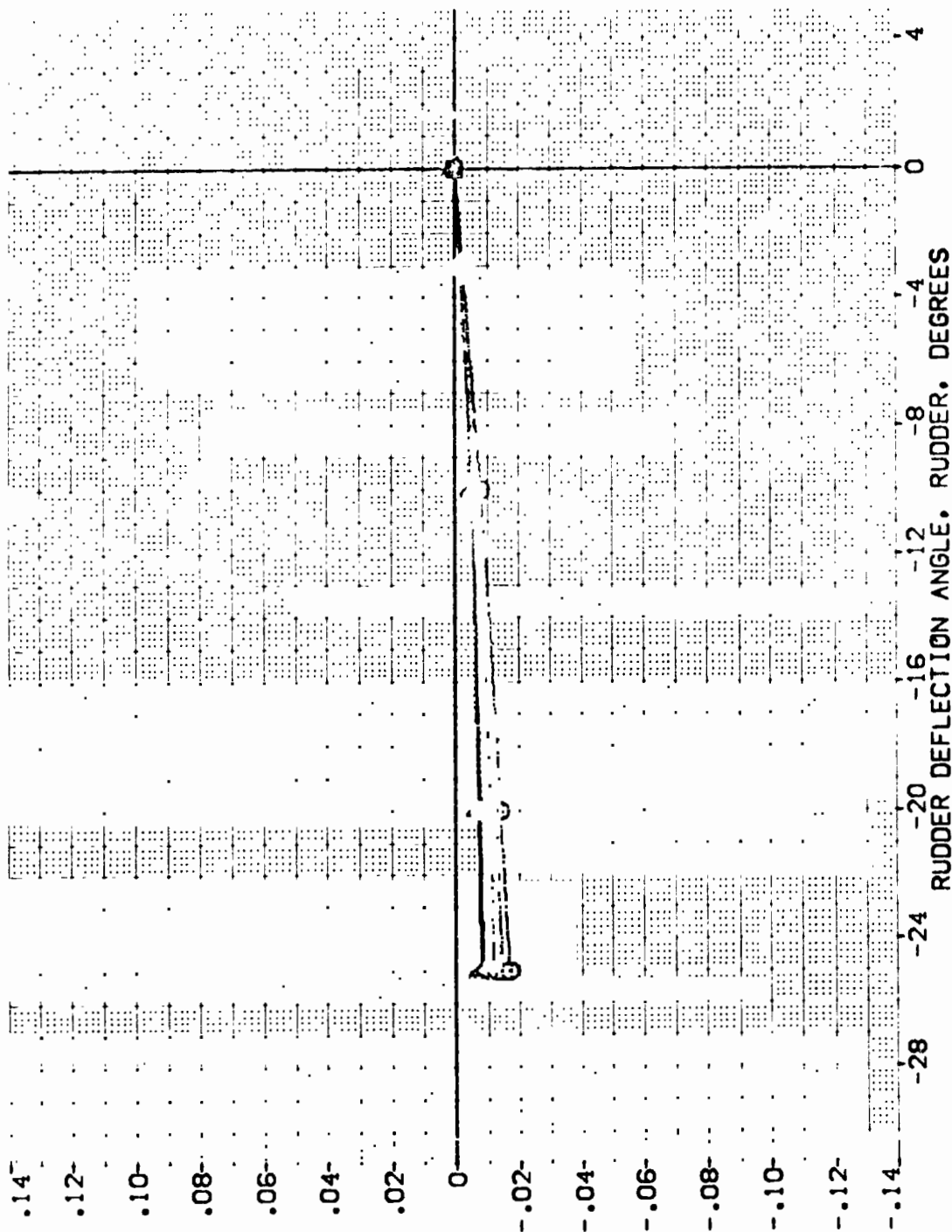


FIG 11 RUDDER EFFECTIVENESS, SPDBRK = 25 DEG., ALPHA = 10 DEG.



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 { R53028 } 0A110 851C11F1251V124E40V18R15C28
 { R53029 } 0A110 851C11F1251V124E41V18R15C28
 { R53036 } 0A110 851C11F1251V124E42V18R15C28

ALPHA RUDDER SPDBRK
 10.000 .000 25.000
 10.000 .000 25.000
 10.000 .000 25.000

AILRON REFERENCE INFORMATION
 .000 SREF 4.4118 50. FT.
 .000 LREF 19.2259 INO-ES
 .000 BREF 37.5359 INO-ES
 XMRP 43.5974 INO-ES
 YMRP .0000 INO-ES
 ZMRP 15.1875 INO-ES
 SCALE .0405 SCALE

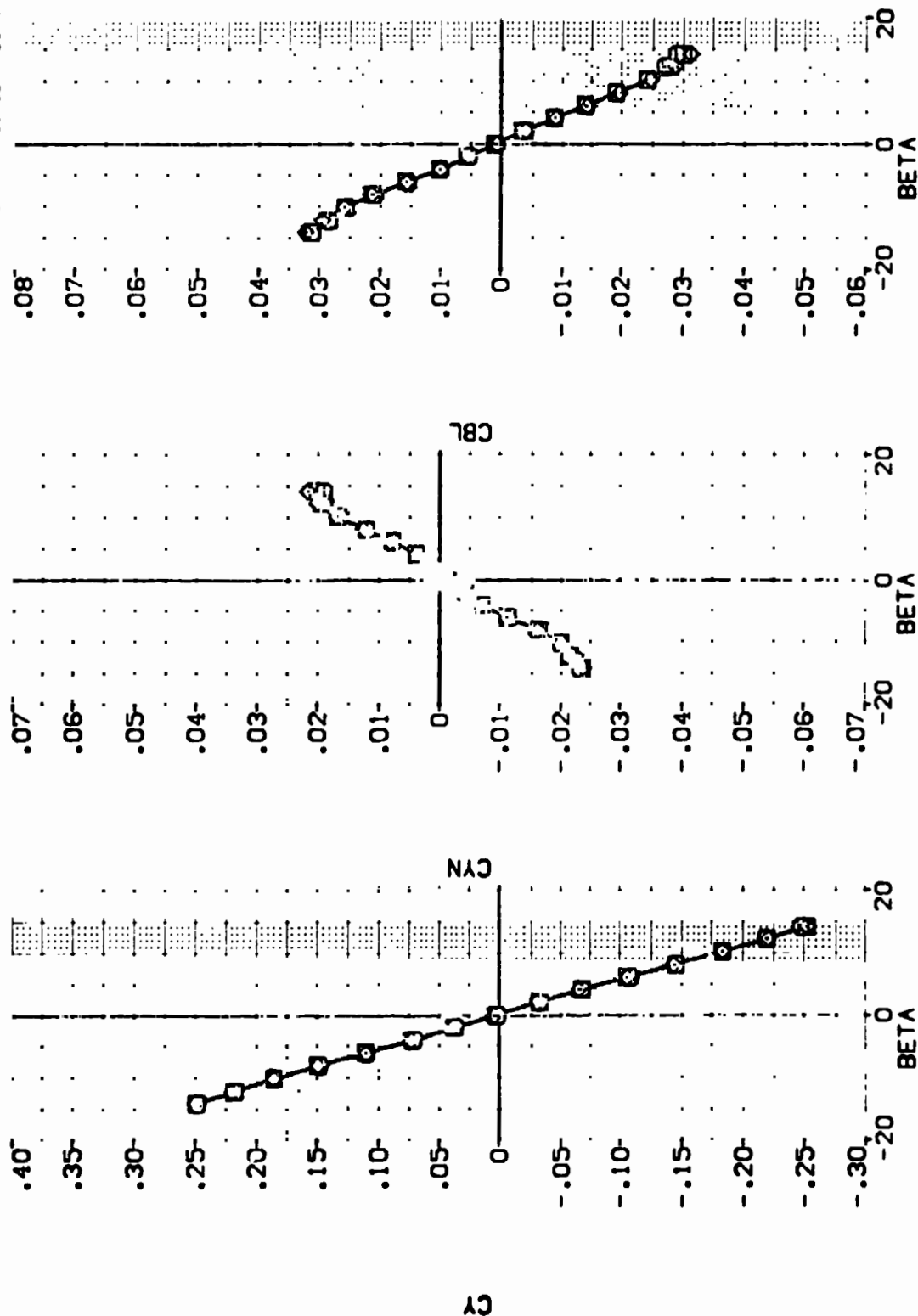


FIG 12 EFFECT OF ELEVON SEALS, ELEVON = 0 DEG., SPDBRK = 25 DEG.

(AJMACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H5028) 0A110 861C11F1251V124E40V19R15C28
 (H5029) 0A110 861C11F1251V124E41V19R15C28
 (H5036) 0A110 861C11F1251V124E42V19R15C28

MACH ELEVON AILRON BDFLAP REFERENCE INFORMATION
 .200 .000 .000 -12.000 SREF 4.4119 50. FT.
 .200 .000 .000 -12.000 LREF 19.2299 110-ES
 .200 .000 .000 -12.000 BREF 37.9359 110-ES
 XMRP 43.5974 110-ES
 YMRP .0000 110-ES
 ZMRP 15.1875 110-ES
 SCALE .0405 110-ES

SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

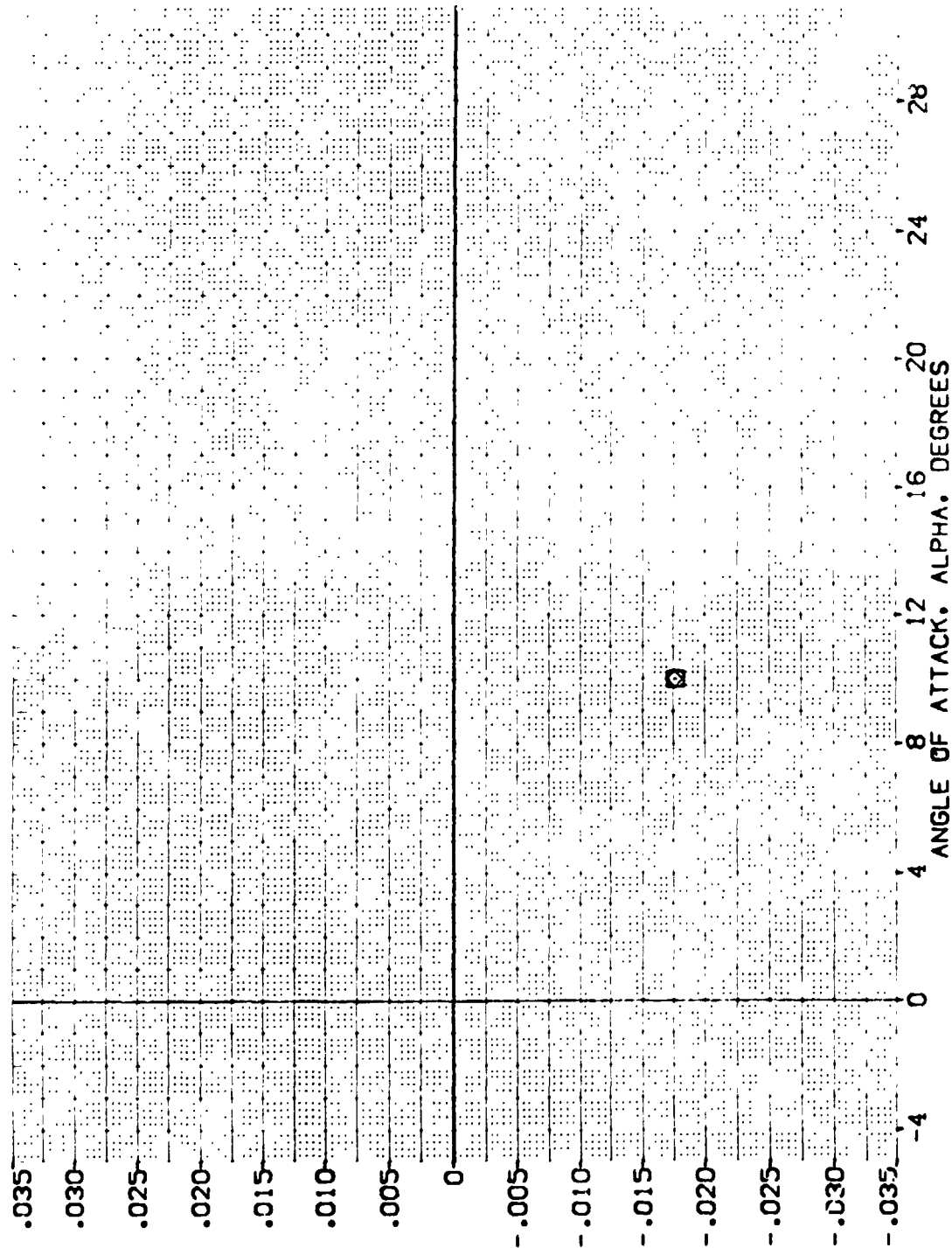


FIG 12 EFFECT OF ELEVON SEALS, ELEVON = 0 DEG., SPDBRK = 25 DEG.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MAC	ELEVON	AILRON	BDFLAP	REFERENCE INFORMATION
[MF5028]	0A110 BSIC11F12-51V124E40V1SR15C28	.200	.000	.000	-12.000	SREF 4.4118 50.FT.
[MF5029]	0A110 BSIC11F12-51V124E41V1SR15C28	.200	.000	.000	-12.000	UREF 19.2259 INCHES
[MF5030]	0A110 BSIC11F12-51V124E42V1SR15C28	.200	.000	.000	-12.000	UREF 37.5369 INCHES
						XREF 43.5974 INCHES
						YREF .0000 INCHES
						ZREF 15.1875 INCHES
						SCALE .0405

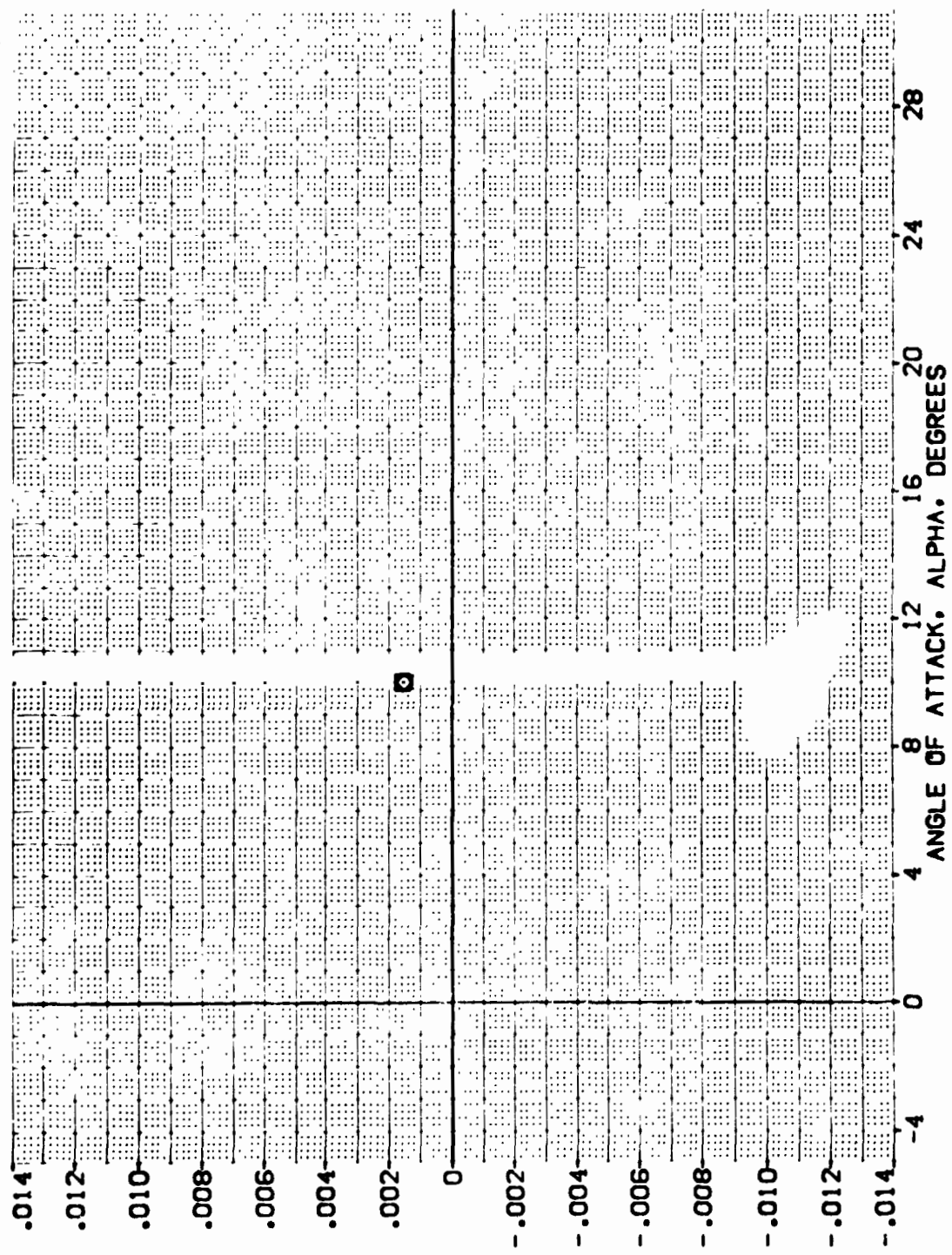


FIG 12 EFFECT OF ELEVON SEALS, ELEVON = 0 DEG., SPDBRK = 25 DEG.

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBLBET, PER DEGREE

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION
(MF5023)	0A110 661C11F126S1V124E40V1SR15023	.200	.000	.000	-12.000	SREF 4.4119 SQ.FT.
(MF5024)	0A110 661C11F126S1V124E41V1SR15023	.200	.000	.000	-12.000	LREF 19.2299 INCHES
(MF5025)	0A110 661C11F126S1V124E42V1SR15023	.200	.000	.000	-12.000	BREF 37.9359 INCHES
						XPRP 43.5974 INCHES
						YPRP .0000 INCHES
						ZPRP 15.1875 INCHES
						SCALE .0405

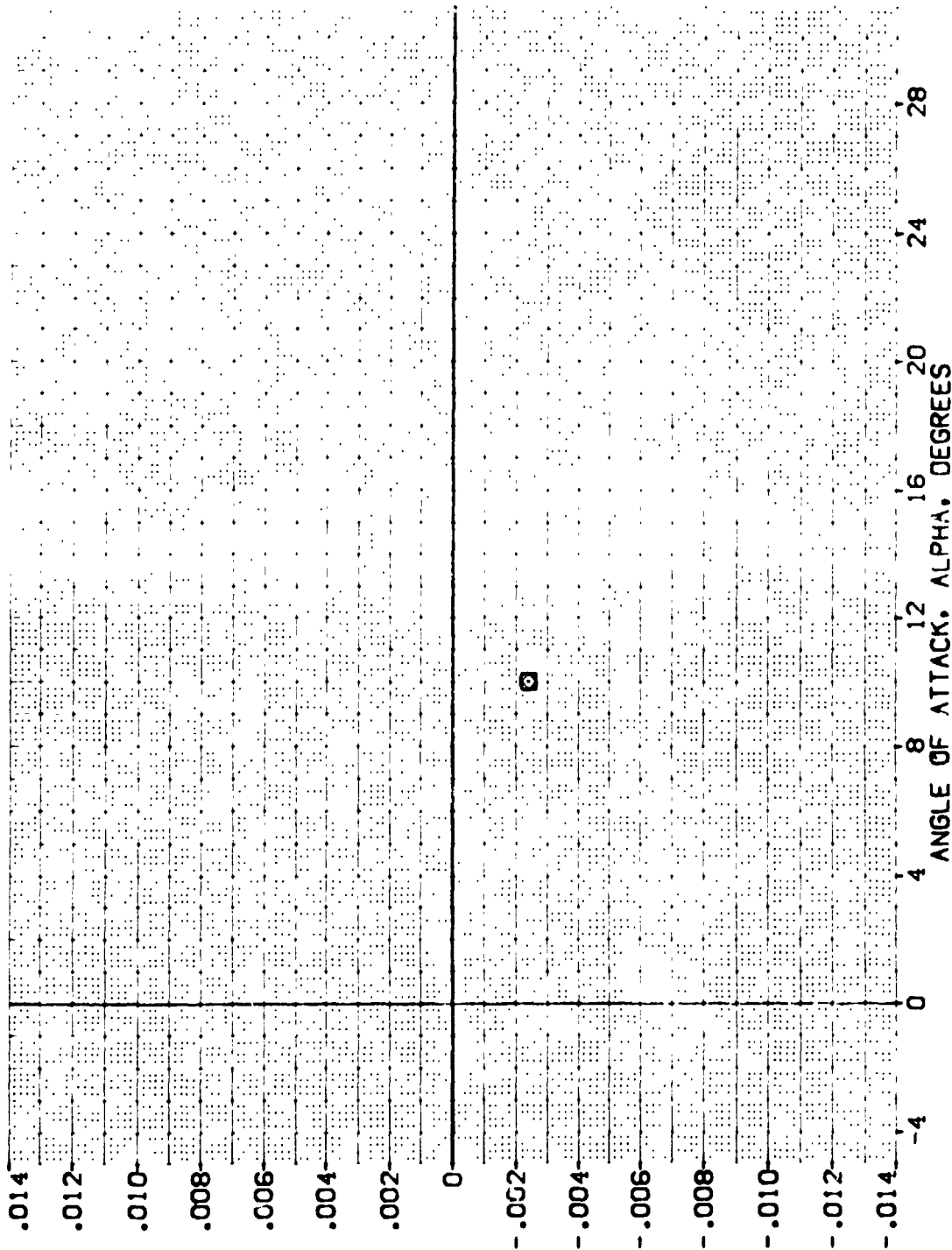


FIG 12 EFFECT OF ELEVON SEALS, ELEVON = 0 DEG., SPDBRK = 25 DEG.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPUDBRK	REFERENCE INFORMATION
{EP5032}	0A110 BSIC1F12P51V124E41V1SR15X29	-20.000	.000	.000	25.000	SREF 4.4119 50.000
{EP5030}	0A110 BSIC1F12P51V124E41V1SR15X29	.000	.000	.000	25.000	LREF 19.2259 10.000
{EP5031}	0A110 BSIC1F12P51V124E41V1SR15X29	15.000	.000	.000	25.000	BREF 37.9359 10.000
						YPRP 43.5574 10.000
						ZPRP .0000 10.000
						SCALE 15.1875 10.000

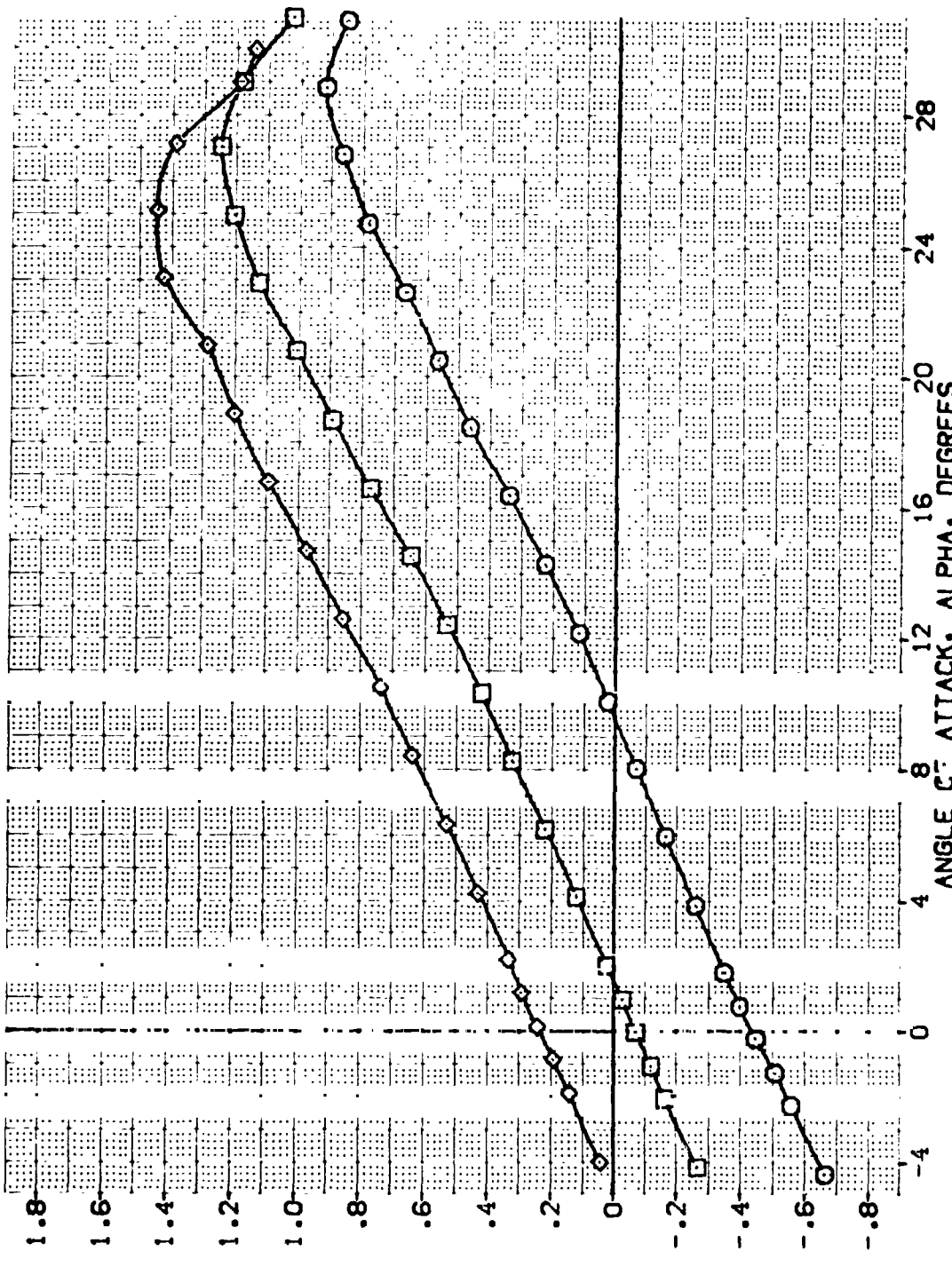


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.
 (A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5032) 0A110 861C11F1251V124E41V1SR1S029
 (EF5033) 0A110 861C11F1251V124E41V1SR1S029
 (EF5031) 0A110 861C11F1251V124E41V1SR1S029

ELEVON AILERON RUDDER SPEED
 -20.000 .000 25.000
 .000 .000 25.000
 15.000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2239 INCHES
 BREF 37.9359 INCHES
 XMRP 43.5374 INCHES
 YMRP .0000 INCHES
 ZMRP 15.1875 INCHES
 SCALE .0405 SCALE

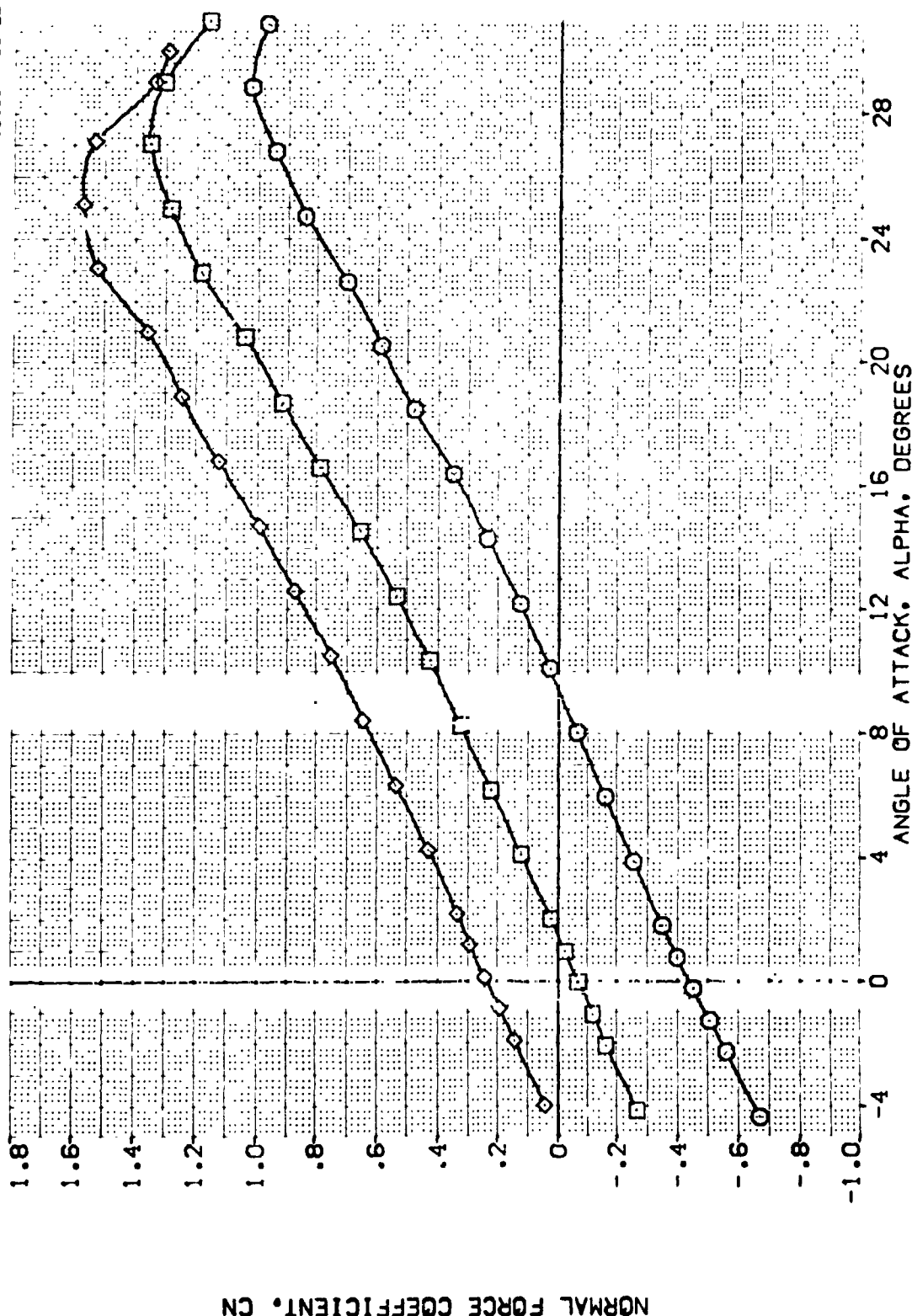


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BOFLAP = -11.7 DEG.

CAMMACH = .20

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DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5032) 0A110 BSIC11F12V51V124E41V1SR15X29
 (EF5033) 0A110 BSIC11F12V51V124E41V1SR15X29
 (EF5031) 0A110 BSIC11F12V51V124E41V1SR15X29

ELEVON AIRLON RUDDER SPOILER REFERENCE INFORMATION
 -20.000 .000 .000 25.000 SREF 4.4119 50. FT.
 15.000 .000 .000 25.000 LREF 19.2299 INCHES
 .000 .000 .000 25.000 BREF 37.9359 INCHES
 .000 .000 .000 25.000 XREF 43.5974 INCHES
 .000 .000 .000 25.000 YREF 15.1875 INCHES
 .000 .000 .000 25.000 ZREF 15.1875 INCHES
 .000 .000 .000 25.000 SCALE .0405

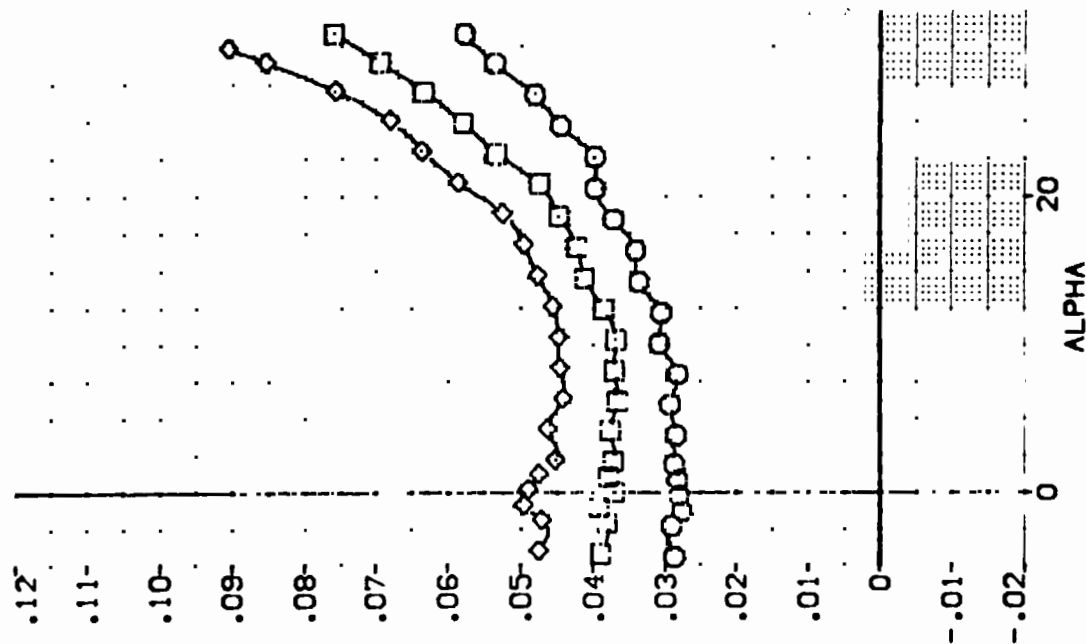
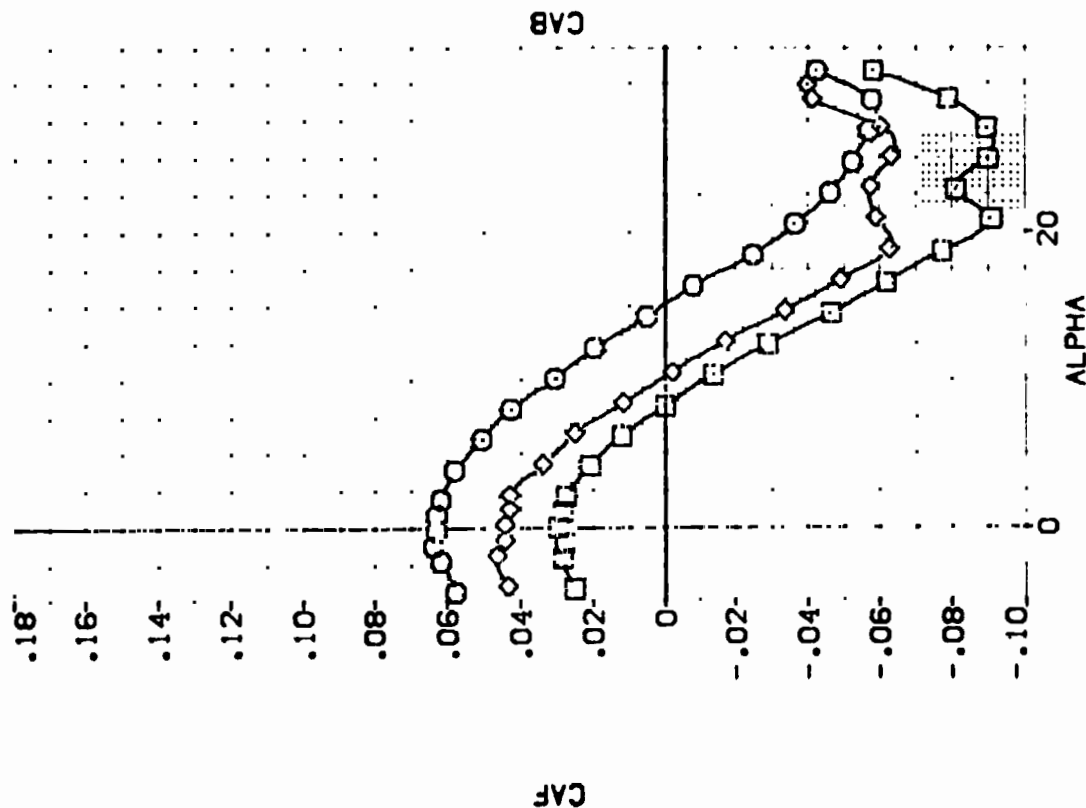


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BOFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EF5022} 0A110 861C1F1251V124E1V19R15X28
 {EF5030} 0A110 861C1F1251V124E1V19R15X28
 {EF5031} 0A110 861C1F1251V124E1V19R15X28

ELEVON ALLUON RUDDER SPODBK REFERENCE INFORMATION
 -20.000 .000 .000 25.000 SREF 4.4119 SQ.FT.
 15.000 .000 .000 25.000 LREF 19.2299 INCHES
 .000 .000 .000 25.000 BREF 37.5359 INCHES
 .000 .000 .000 25.000 XMRP 43.5974 INCHES
 .000 .000 .000 25.000 YMRP .0000 INCHES
 .000 .000 .000 25.000 ZMRP 15.1675 INCHES
 .000 .000 .000 25.000 SCALE .0405 SCALE

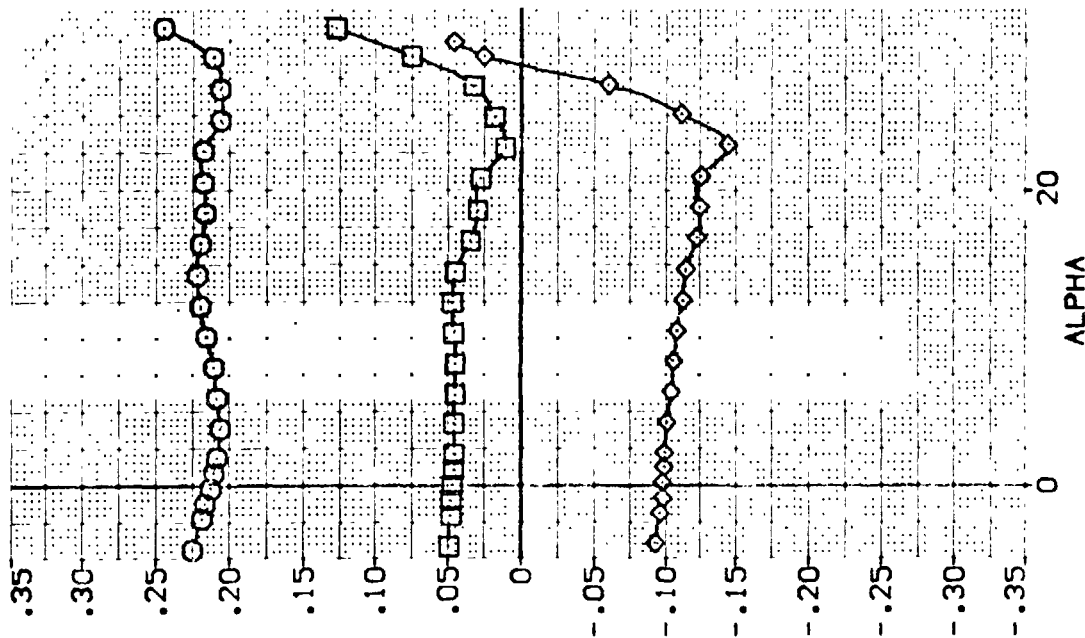
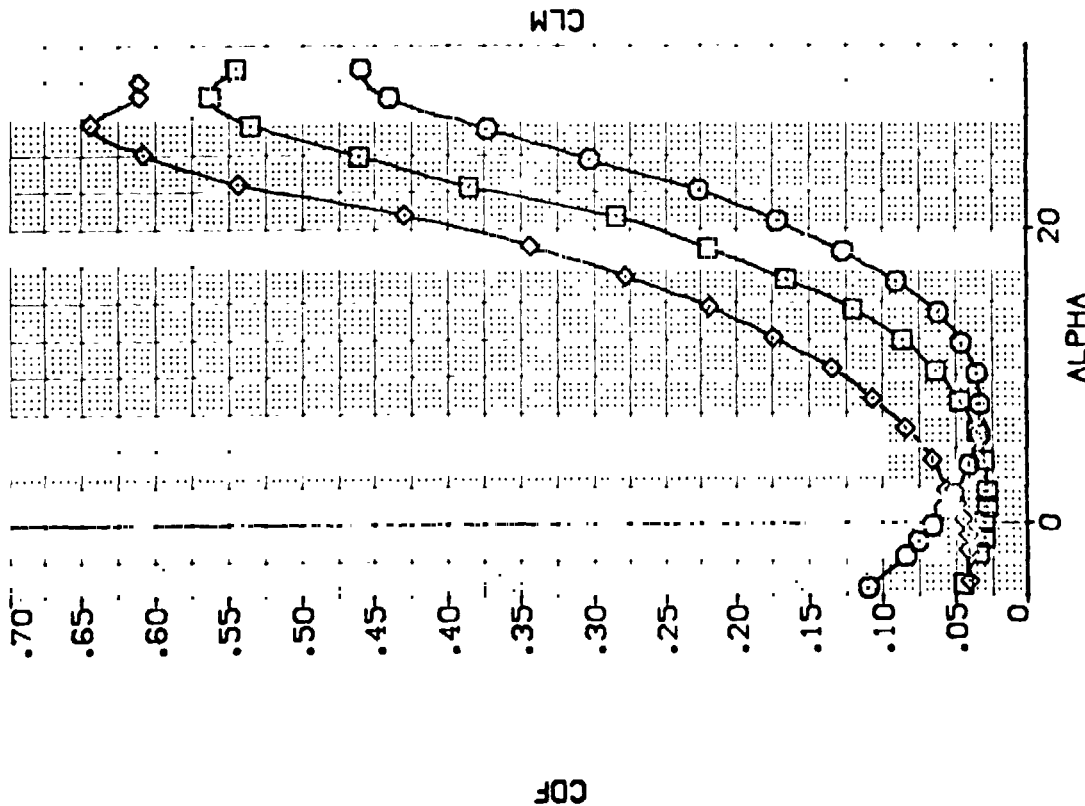


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET 3180L	CONFIGURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPDWRK	REFERENCE INFORMATION
{EF5032}	0A110 B61C11F1 24E41V1SR15C28	-20.000	.000	.000	25.000	SREF 4.4119 SQ.FT.
{EF5030}	0A110 B61C11F125 24E41V1SR1 5C28	.000	.000	.000	25.000	LREF 19.2299 INCHES
{EF5031}	0A110 B61C11F125 24E41V1SR15C28	15.000	.000	.000	25.000	BREF 37.5359 INCHES
						YMRP 43.5974 INCHES
						ZMRP .0000 INCHES
						SCALE 15.1875 INCHES
						SCALE .0405

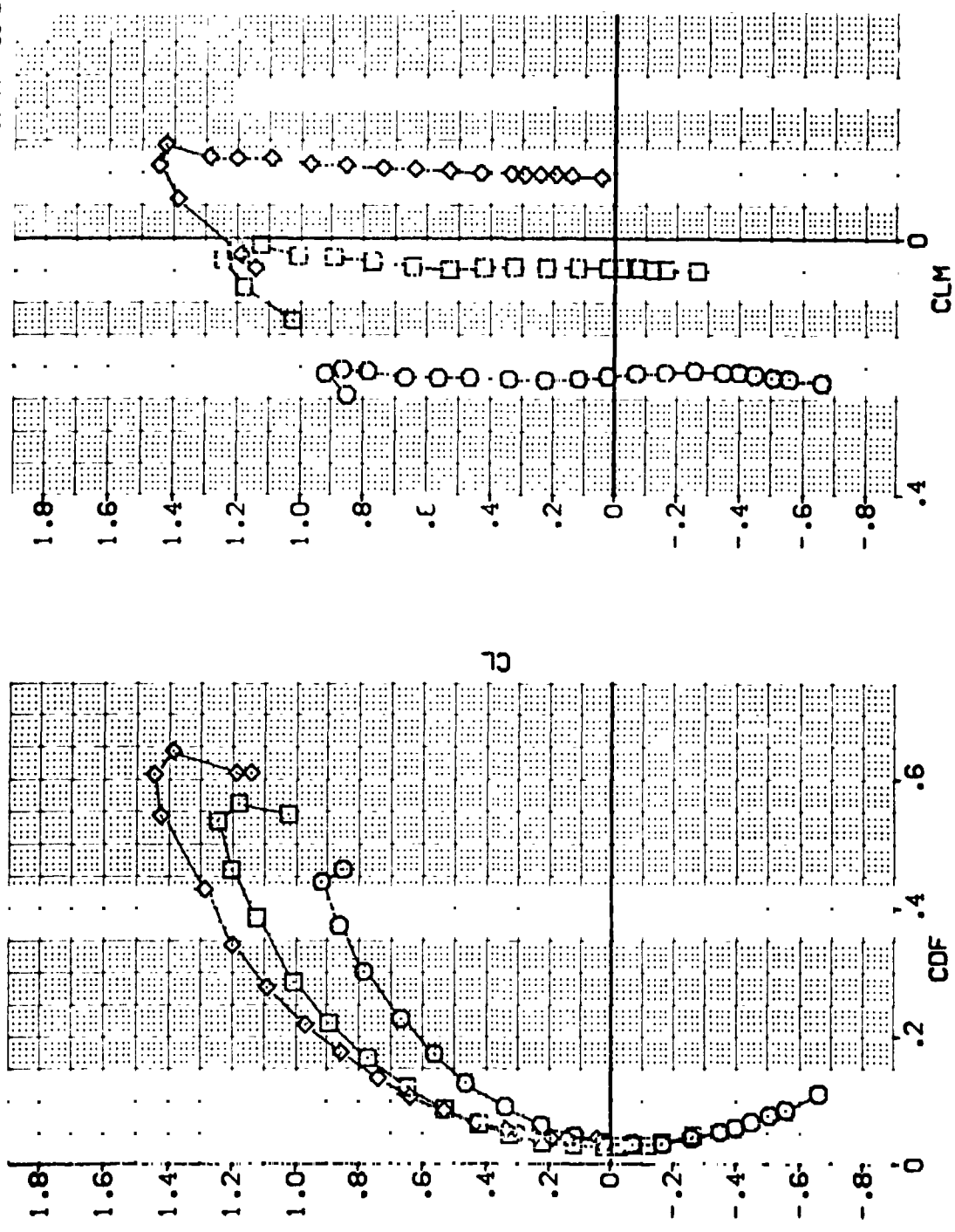


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5002) 0A110 BSIC1F:24E4:V1:915X23
 (EF5003) 0A110 BSIC1F:24E4:V1:915X23
 (EF5004) 0A110 BSIC1F:24E4:V1:915X23

ELEVON AIRLON RUDDER SPEEDYK REFERENCE INFORMATION SQ.FT. INCHES
 -20.000 .000 .000 25.000 SREF 4.4119 INCHES
 15.000 .000 .000 25.000 LREF 19.2299 INCHES
 .000 .000 .000 25.000 BREF 37.5359 INCHES
 .000 .000 .000 25.000 XREF 43.5574 INCHES
 .000 .000 .000 25.000 YREF 15.1875 INCHES
 .000 .000 .000 25.000 ZREF 15.1875 INCHES
 .000 .000 .000 25.000 SCALE .0405 SCALE

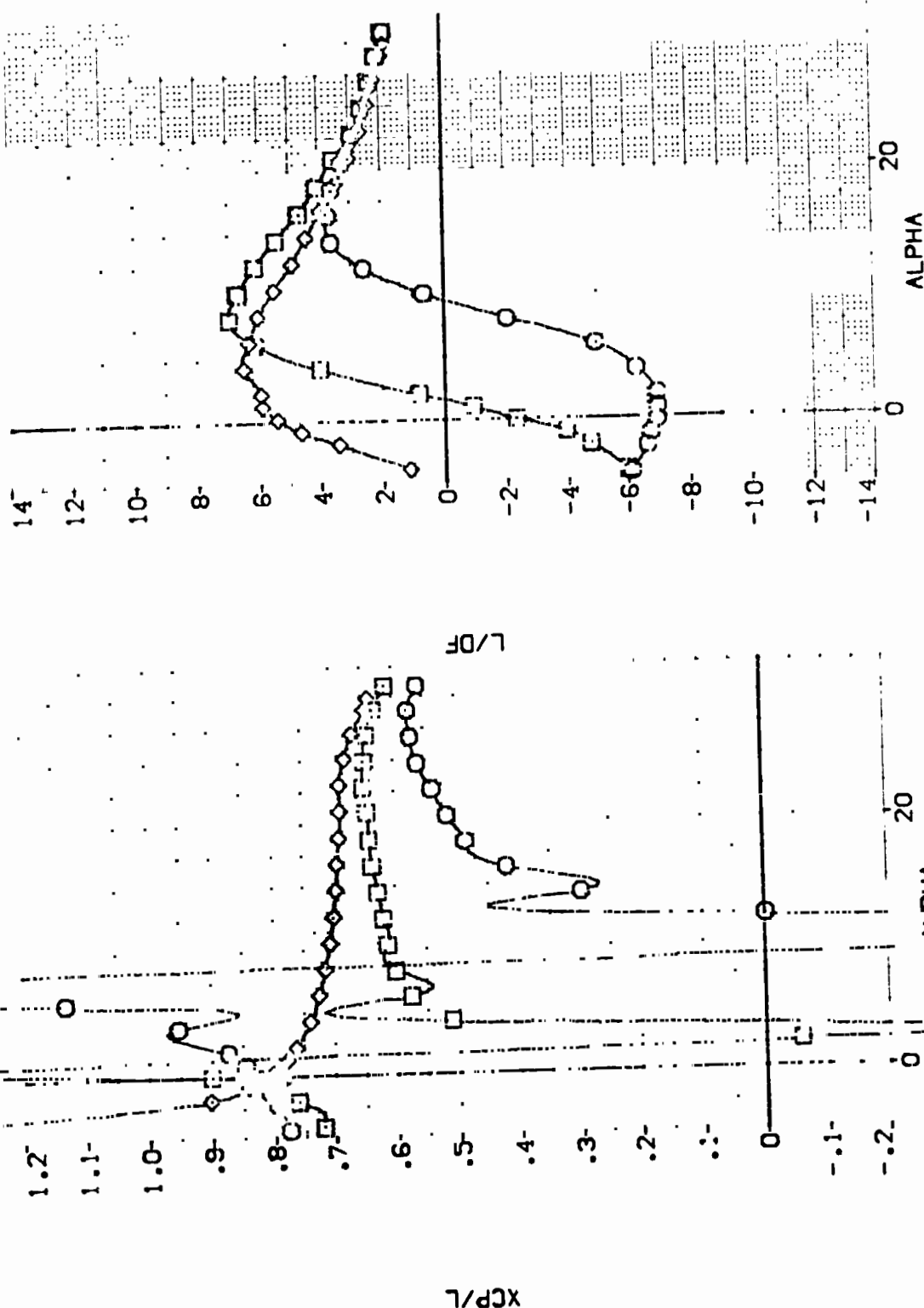


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.

(A)MACH = .20

(KF5032)

0A110 B61C11F12M51W124E41V19R15X29

SYMBOL	ALPHA	MACH	BOFLAP	RUDER	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
□	-1.000	.200	-12.000	AILRON	.000	DATA SET	SREF
□	.000	.000	.000	SPOBRK	25.000	KF5032	LREF
□	4.000	.000	.000	BETA	.000	KF5031	BREF
△	8.000	.000	.000				XREF
△	12.000	.000	.000				YREF
							ZREF
							SCALE
							SO.FT.
							INCHES
							INCHES
							INCHES
							INCHES
							SCALE

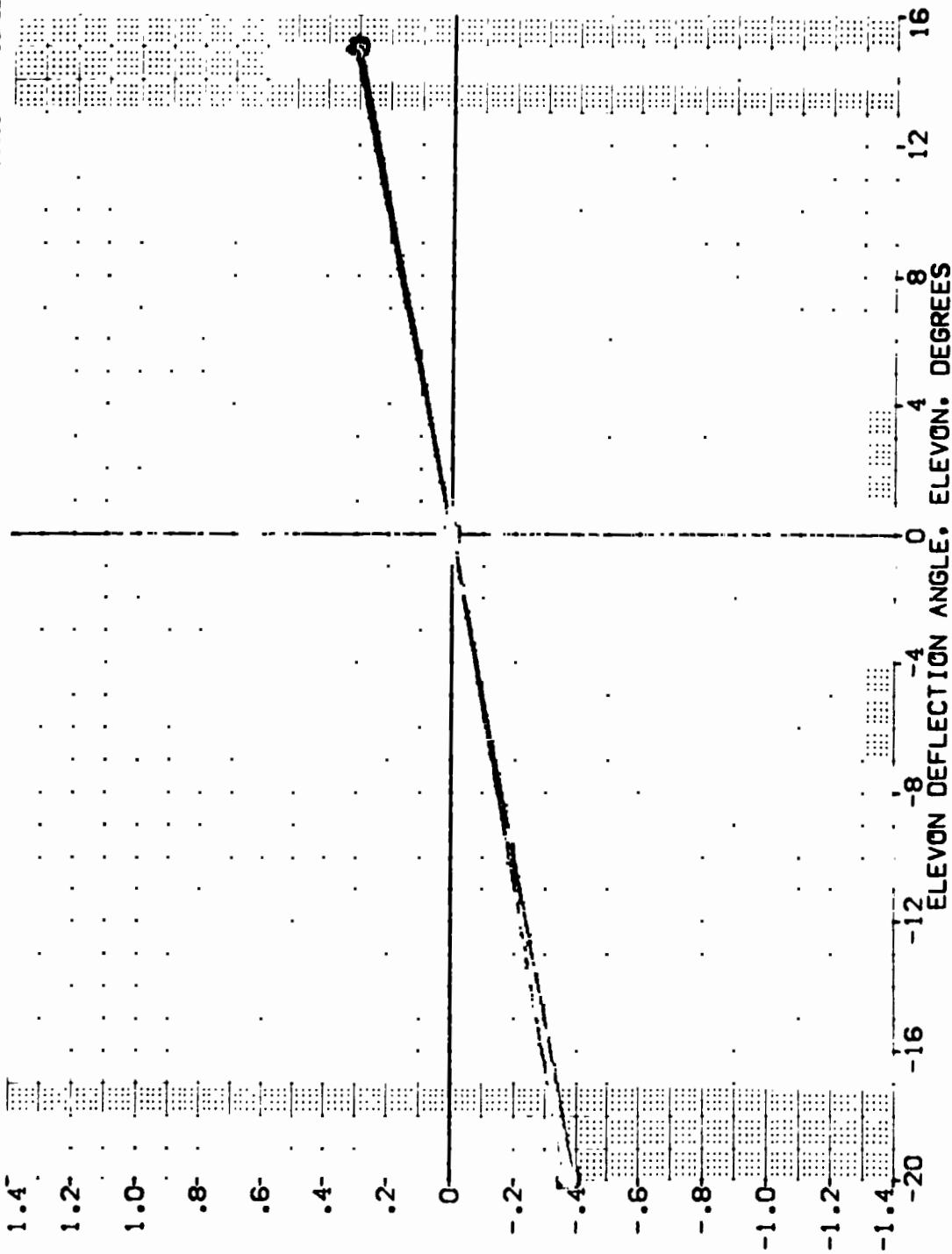


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BOFLAP = -11.7 DEG.

0A110 B61C11F12M51W124E41V19R15X29 (KF5032)

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	16.000		.200	ELEVON	SREF 4.4119 SQ.FT.
□	20.000	BDFLAP	-12.000	DATASET KF5030	LREF 19.2299 INCHES
◇	24.000	RUDDER	.000	ELEVON	BREF 37.9359 INCHES
△	28.000		.000	DATASET KF5031	XREF 43.5674 INCHES
			BETA	YREF .0000 INCHES	ZREF 15.1873 INCHES
				SCALE	SCALE .0405

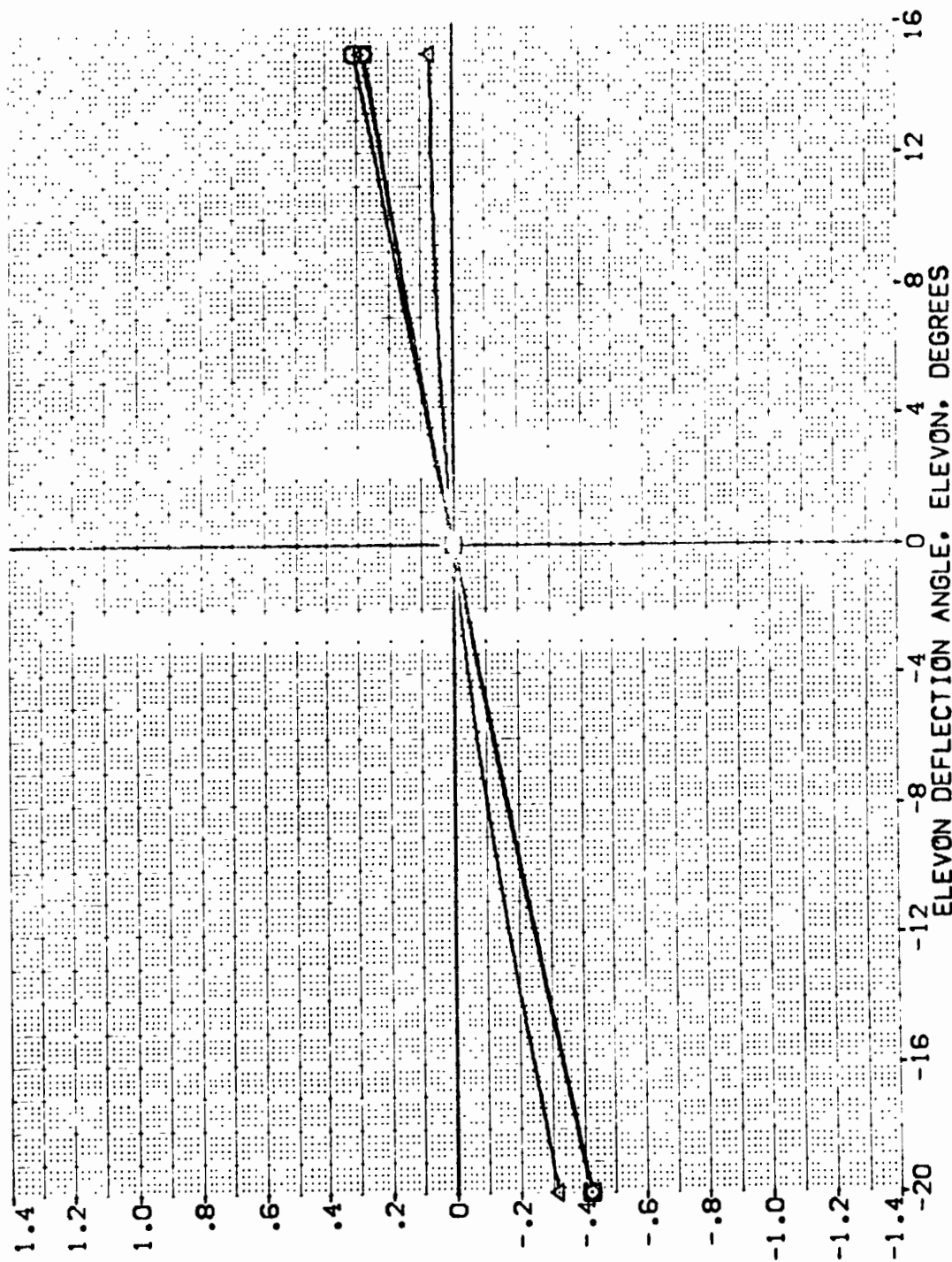


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.

(KF5032)

0A110 B61C11F12M51W124E41V19R15X29

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATA SOURCE	ELEVON	DATASET	ELEVON	REFERENCE INFORMATION
○	-4.000		.200 AILRON	.000 DATASET	-20.000	KF5030	.000	4.4119 SQ.FT.
□	.000		-12.000 SPOBRK	25.000 KF5032	15.000			19.2288 INO-ES
◇	4.000		.000 BETA	.000 KF5031				37.9259 INO-ES
△	8.000							43.5574 INO-ES
▽	12.000							.0000 INO-ES
								15.1875 INO-ES
								.0405 SCALE

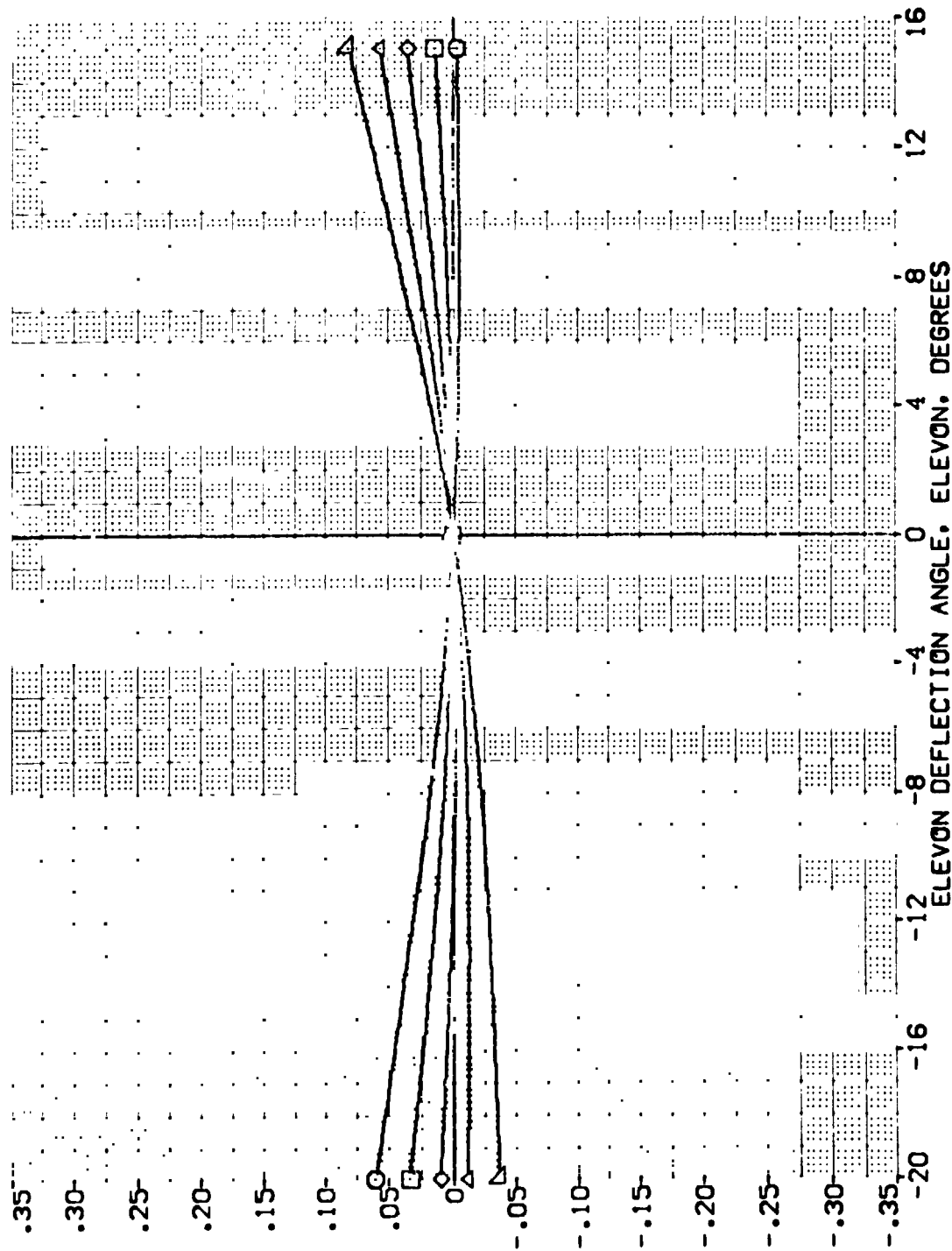


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.

(KF5032)

0A110 B61C11F12M51W124E41V19R15X29

SYMBOL
○ □ ◇ △

ALPHA
16.000
20.000
24.000
28.000

MACH
BOFLAP
RUDDER

PARAMETRIC VALUES
.200 AILRON
-12.000 SPOBRK
.000 BETA

.000 DATASET
25.000 KF5032
.000 KF5031

DATA SOURCE
ELEVON
-20.000
15.000

DATASET ELEVON
KF5030 .000

REFERENCE INFORMATION
4.4119 50.FT.
19.2299 INO-ES
37.9359 INO-ES
43.5874 INO-ES
0.000 INO-ES
15.1875 INO-ES
0.0405 SCALE

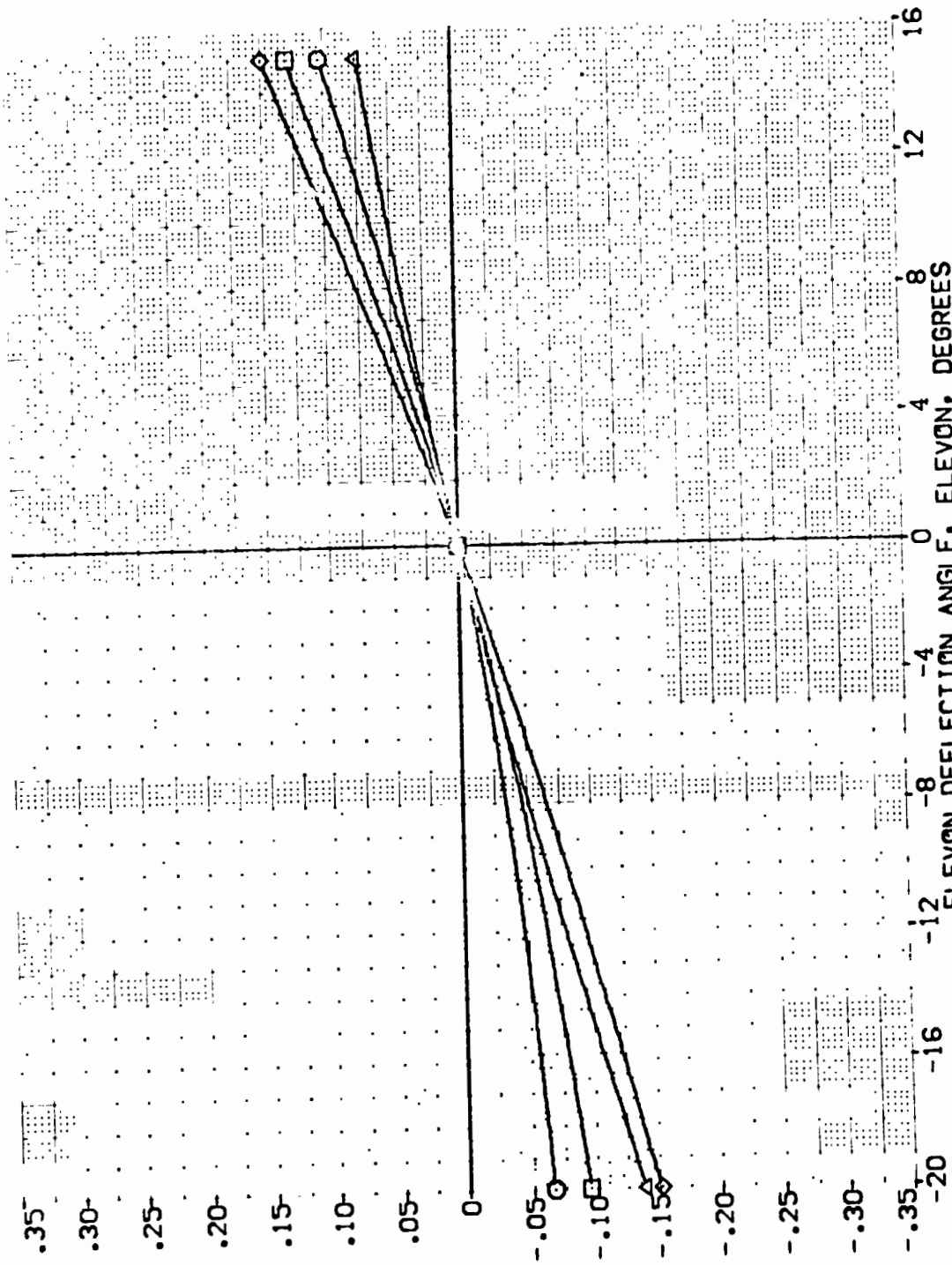


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BOFLAP = -11.7 DEG.

(KF5032)

0A110 B61C11F12M51W124E41V19R15X29

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATA SOURCE	ELEVON	DATA SET	ELEVON	SREF	REFERENCE INFORMATION
▽	-4.000	BDFLAP	.200 AILRON	.000 DATASET	.000	KF5030	.000	4.4119	50. FT.
◇	.000	RUDDER	-12.000 SPOBRK	25.000 KF5032				19.2299	INO-ES
□	4.000		.000 BETA	.000 KF5031				37.9359	INO-ES
△	8.000							43.5974	INO-ES
▽	12.000							.0000	INO-ES
								15.1875	INO-ES
								.0405	SCALE

INCREMENTAL FOREBODY PITCHING MOMENT COEFFICIENT, DCLM

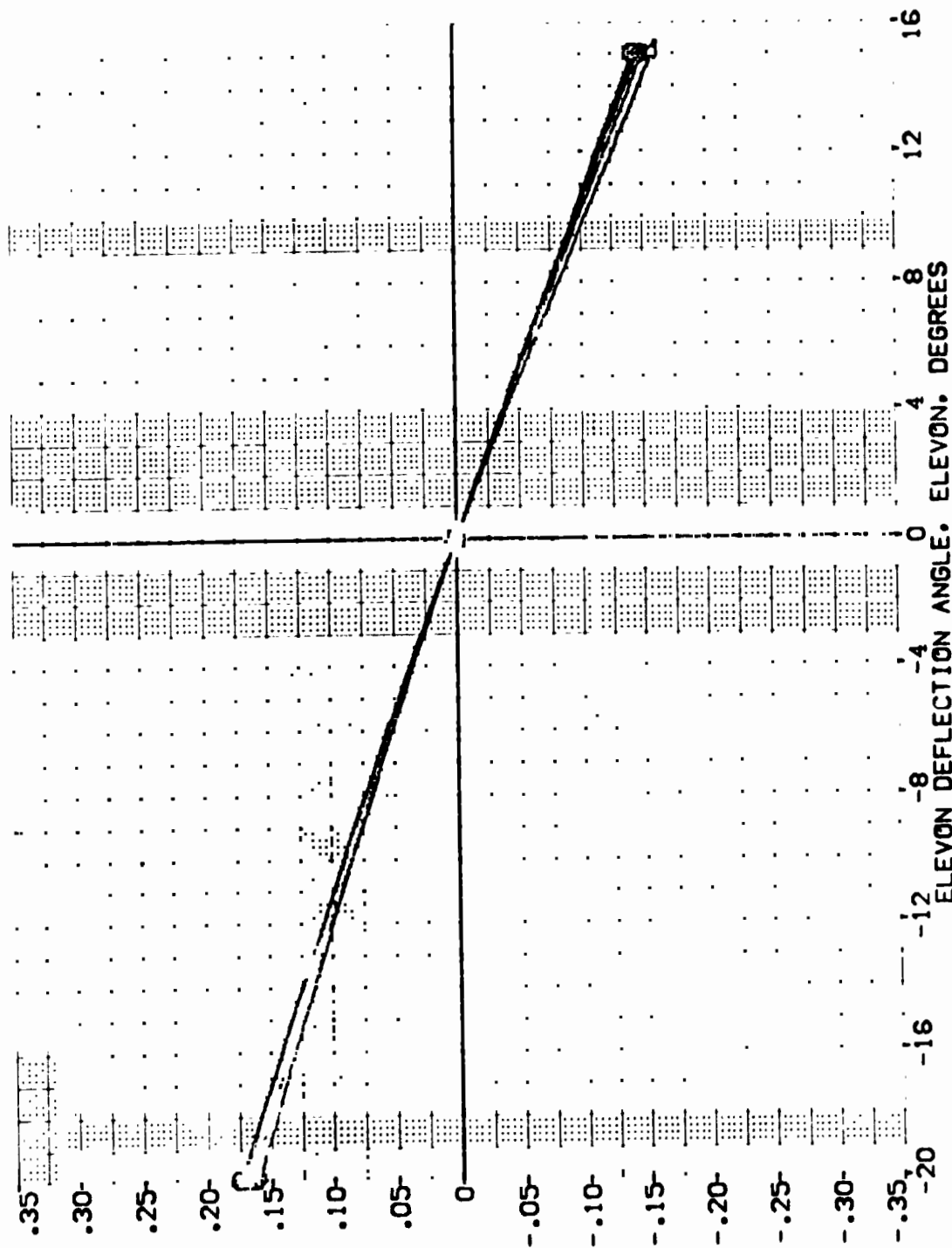


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED, BDFLAP = -11.7 DEG.

0A110 B61C11F12MS1W124E41V1915X29 (KF5032)

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	16.000		.000	ELEVON	4.4119
□	20.000	BOFLAP	.000	ELEVON	19.2709
◇	24.000	RUDDER	25.000	KF5032	37.9359
△	28.000		.000	KF5031	43.2511
					INC 4'S
					INC 4'S
					INC 4'S
					INC 4'S
					INC 4'S
					SCALE
					15.1875
					.0405

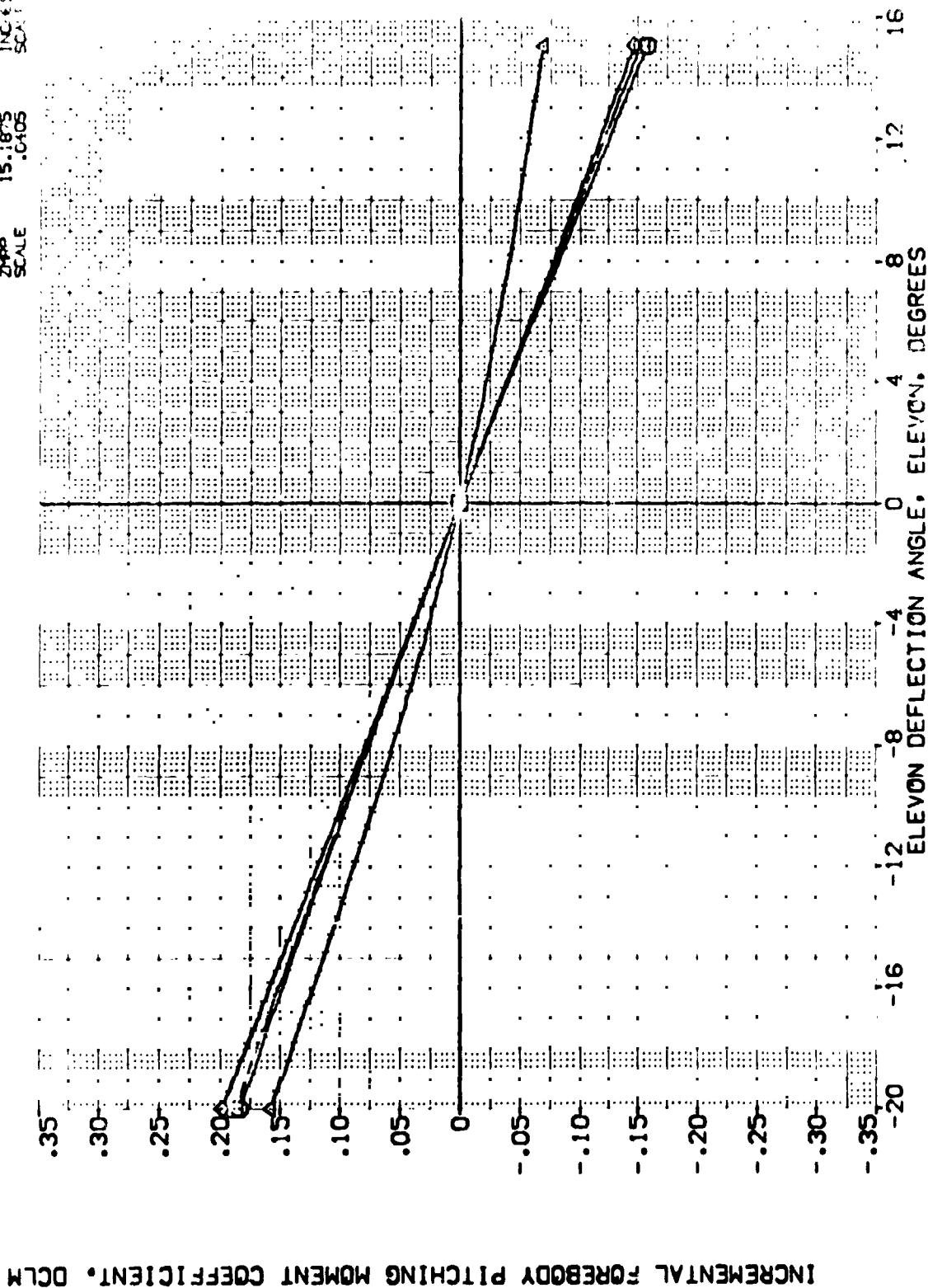


FIG 13 ELEVON EFFECTIVENESS, UPPER SEAL REMOVED. BOFLAP = -11.7 DEG.



ELEVATION	ALIGN	FLDGR	SPBANK	REFERENCE INFORMATION
20.000	.000	.000	25.000	SRET 4.4119 50. FT.
20.000	.000	.000	25.000	NET 19.2208 INCHES
15.000	.000	.000	25.000	BRET 37.9208 INCHES
				TRAP 43.5674 INCHES
				ZAP 15.1075 INCHES
				SCALE .0005 SCALE

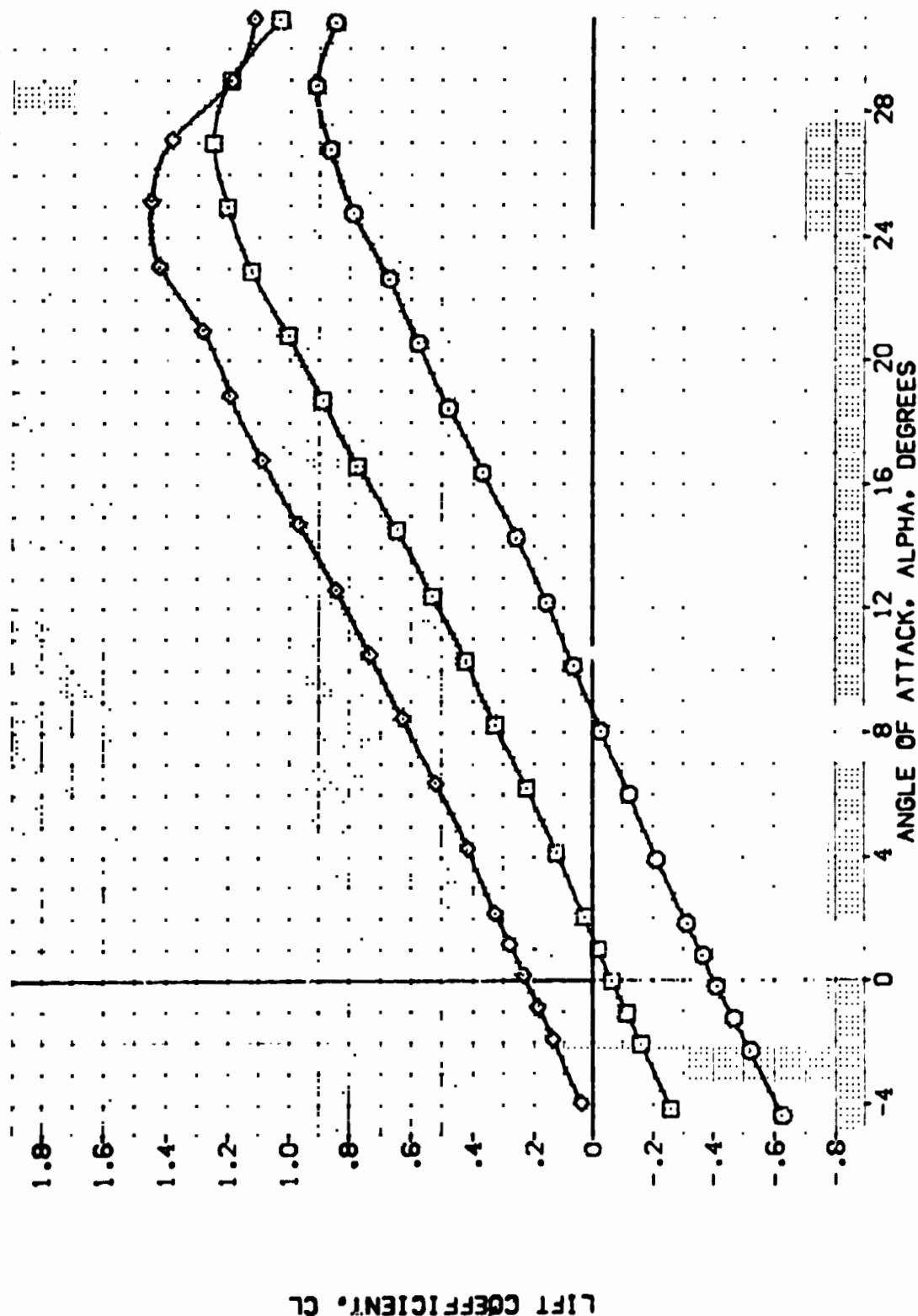


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BDFLAP = -11.7 DEG.

$$\{\Lambda\}_{MACH} = .20$$

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EF5003} 0 0A110 861C11F1251V124E42V18R15X28
 {EF5005} 0 0A113 861C11F1251V124E42V18R15X28
 {EF5004} 0 0A110 861C11F1251V124E42V18R15X28

ELEVON AILURON RUDDER SPUBRK REFERENCE INFORMATION
 -20.000 .000 .000 25.000 SREF 4.4119 50.000 IN-ES
 15.000 .000 .000 25.000 LREF 19.2299 IN-ES
 .000 .000 .000 25.000 XREF 37.9359 IN-ES
 .000 .000 .000 25.000 YREF 43.5974 IN-ES
 .000 .000 .000 25.000 ZREF 15.1875 IN-ES
 .000 .000 .000 25.000 SCALE 15.0405 IN-ES

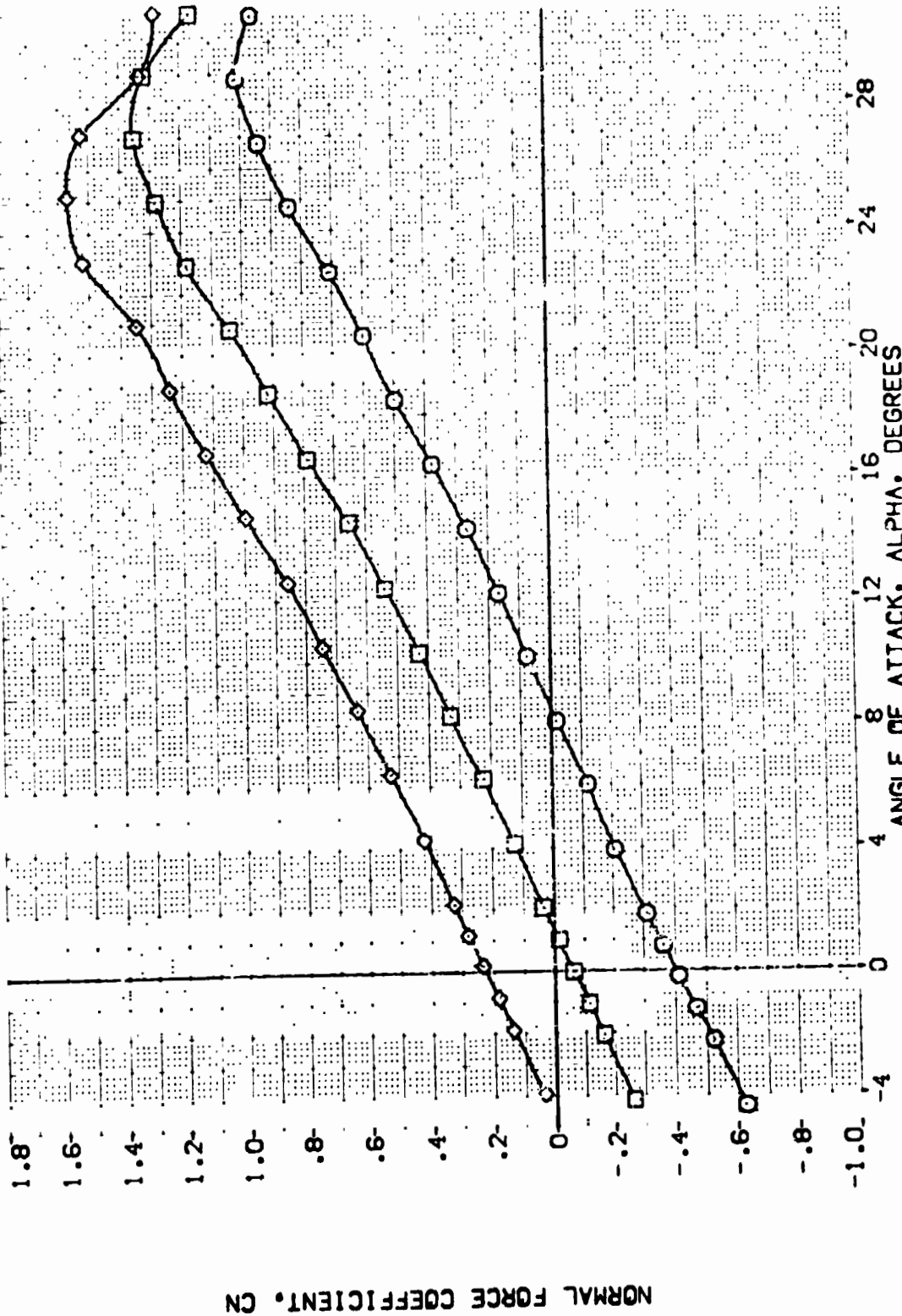


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BDFLAP = -11.7 DEG

(A)MACH = .20

ELEVON	AILERON	RUDDER	SPDBRK	REFERENCE INFORMATION
-20.000	.000	.000	25.000	SREF 4.4119 50.000
.000	.000	.000	25.000	LREF 19.2259 INO-ES
15.000	.000	.000	25.000	BREF 37.9359 INO-ES
				XREF 43.5874 INO-ES
				YREF 15.0000 INO-ES
				ZREF 15.1875 INO-ES
				SCALE .0405 SCALE

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(EF5033)	0A110 861C11F1251V124E12V19R15C3
(EF5035)	0A110 861C11F1251V124E12V19R15C3
(EF5034)	0A110 861C11F1251V124E12V19R15C3

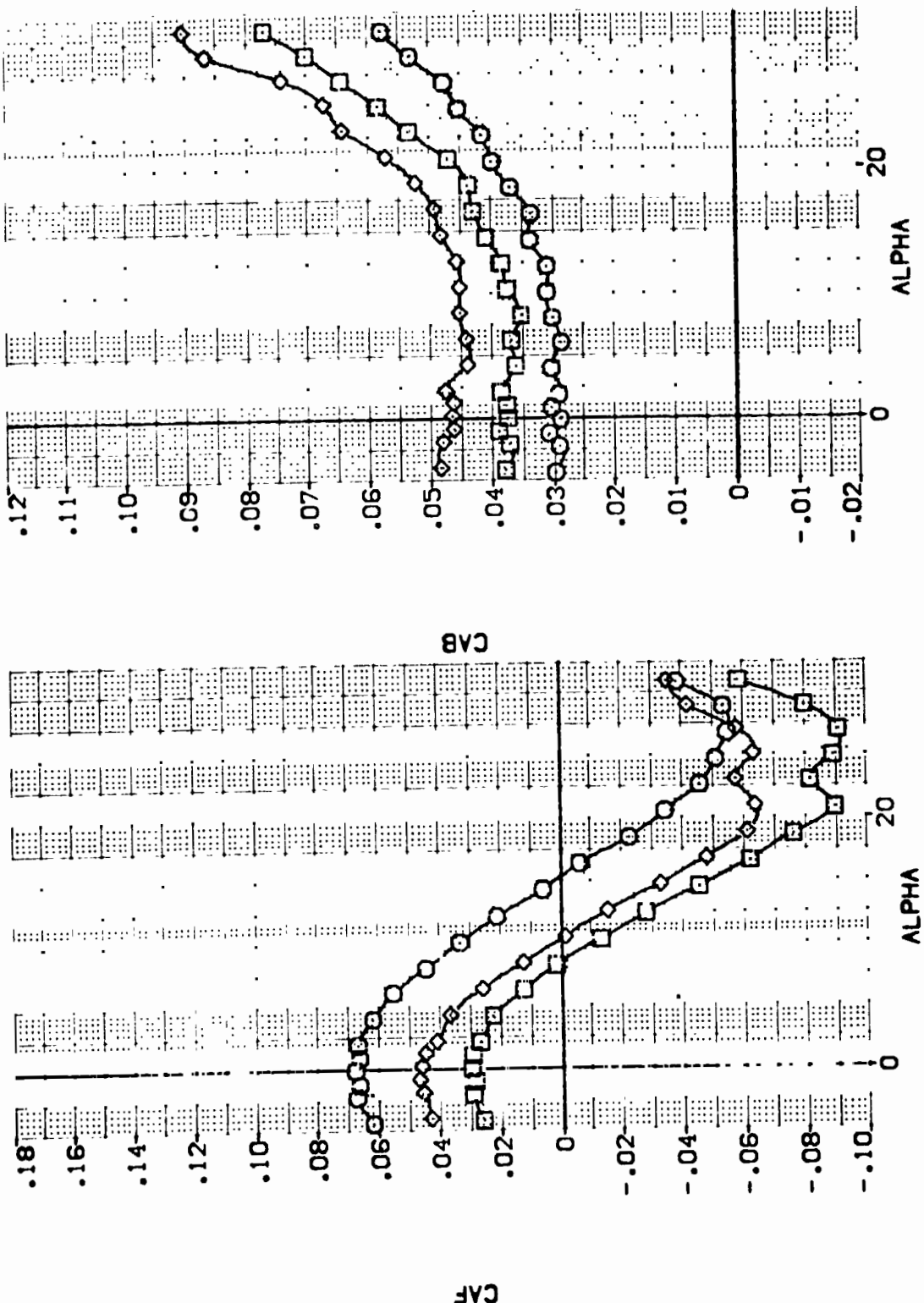


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.
 (A)MACH = .20 PAGE 75

DATA SET SYMBOL	CONFURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPD BRK	REFERENCE INFORMATION
(EF5033)	0A110 B61C1F12G1V124E42V19R15C28	-20.000	.000	.000	25.000	4.4119 50. FT.
(EF5035)	0A110 B61C1F12G1V124E42V19R15C28	.000	.000	.000	25.000	19.2298 IN-O-ES
(EF5034)	0A110 B61C1F12G1V124E42V19R15C28	15.000	.000	.000	25.000	37.9353 IN-O-ES
						43.9574 IN-O-ES
						15.0000 IN-O-ES
						15.1875 IN-O-ES
						.0405 SCALE

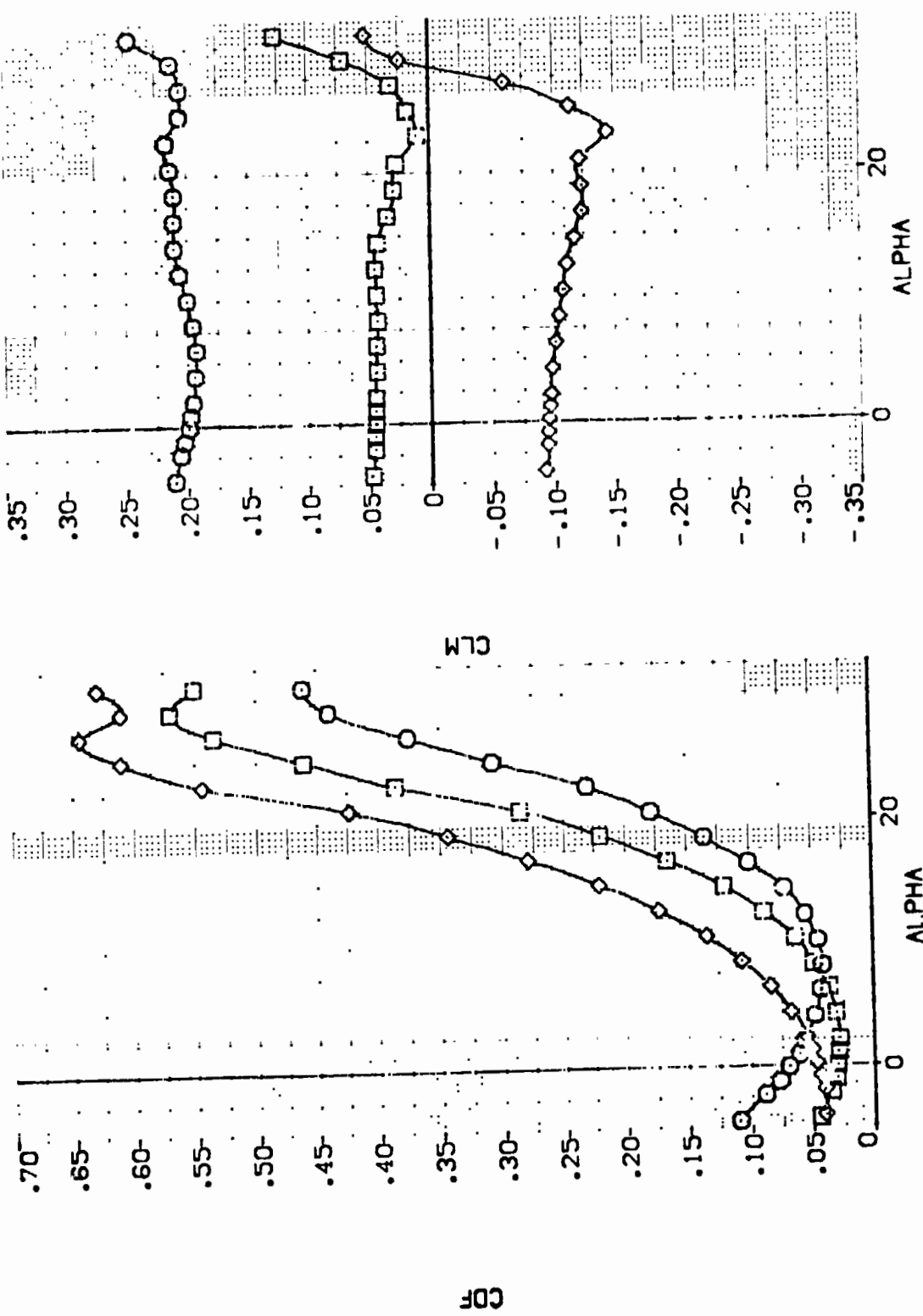


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BDFLAP = -11.7 DEG.
 (A)MACH = .20 PAGE 76

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPDBRK	REFERENCE INFORMATION
{EF5033}	0A110 BSIC11F12451V124E42V18R150C3	-20.000	.000	.000	25.000	SREF 4.4119 SQ.FT.
{EF5035}	0A110 BSIC11F12451V124E42V18R150C3	.000	.000	.000	25.000	LREF 19.2259 INO-ES
{EF5034}	0A110 BSIC11F12451V124E42V18R150C3	15.000	.000	.000	25.000	BREF 37.9359 INO-ES
						XTRP 43.5974 INO-ES
						YTRP .0000 INO-ES
						ZTRP 15.1875 INO-ES
						SCALE .0405

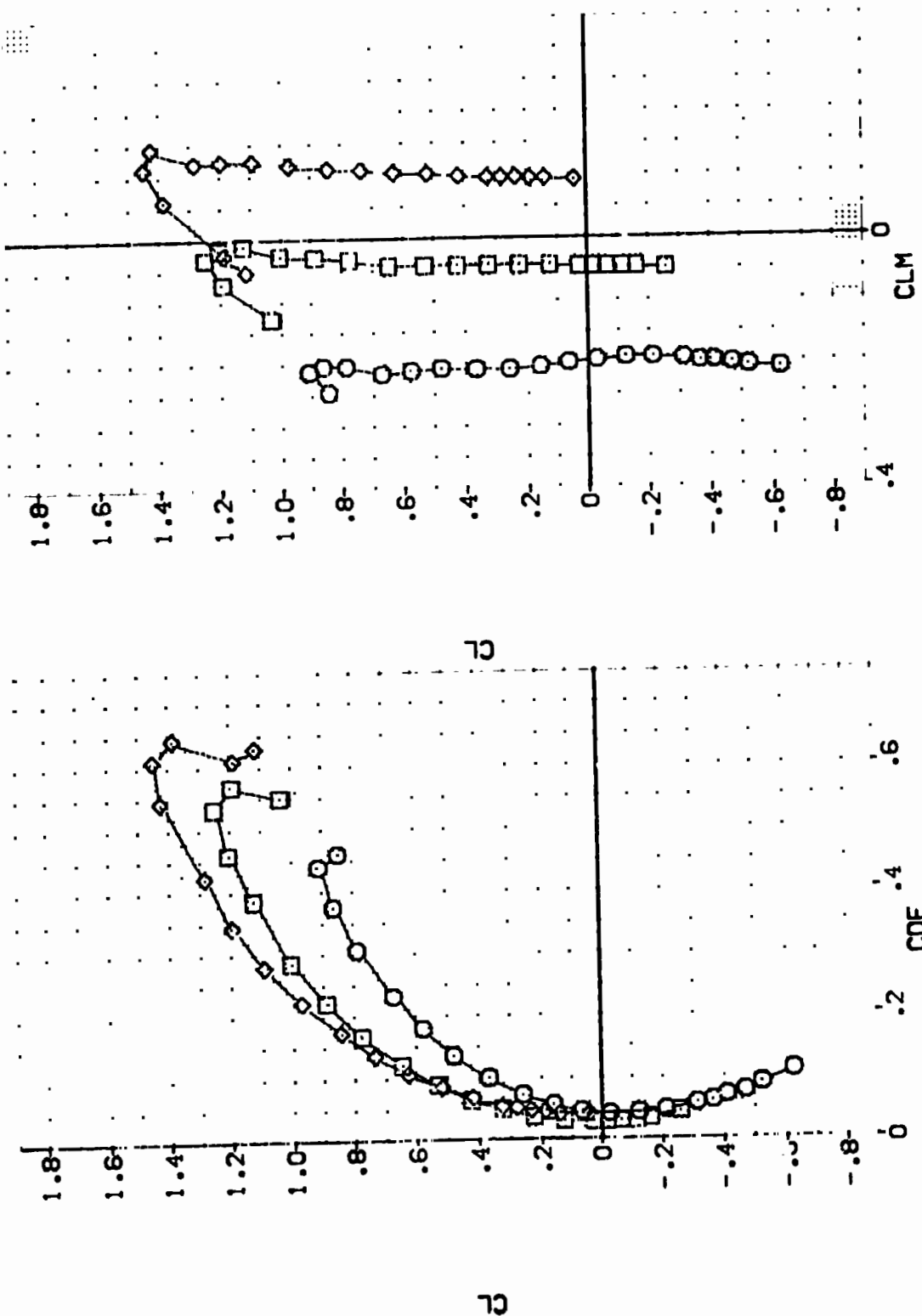


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (EF5033) CA110 7511 2511 24E42V1SR15X28
 (EF5035) CA110 7511 2511 24E42V1SR15X28
 (EF5034) CA110 7511 2511 24E42V1SR15X28

ELEVON AIRLON RUDDER SPOBRK REFERENCE INFORMATION
 -20.000 .000 .000 25.000 SREF 4.4119 50.000
 .000 .000 .000 25.000 LREF 19.2239 INO-ES
 15.000 .000 .000 25.000 BREF 37.9339 INO-ES
 .000 .000 .000 25.000 XMRP 43.5974 INO-ES
 .000 .000 .000 25.000 YMRP .0000 INO-ES
 .000 .000 .000 25.000 ZMRP 15.1875 INO-ES
 .000 .000 .000 25.000 SCALE .0405 INO-ES

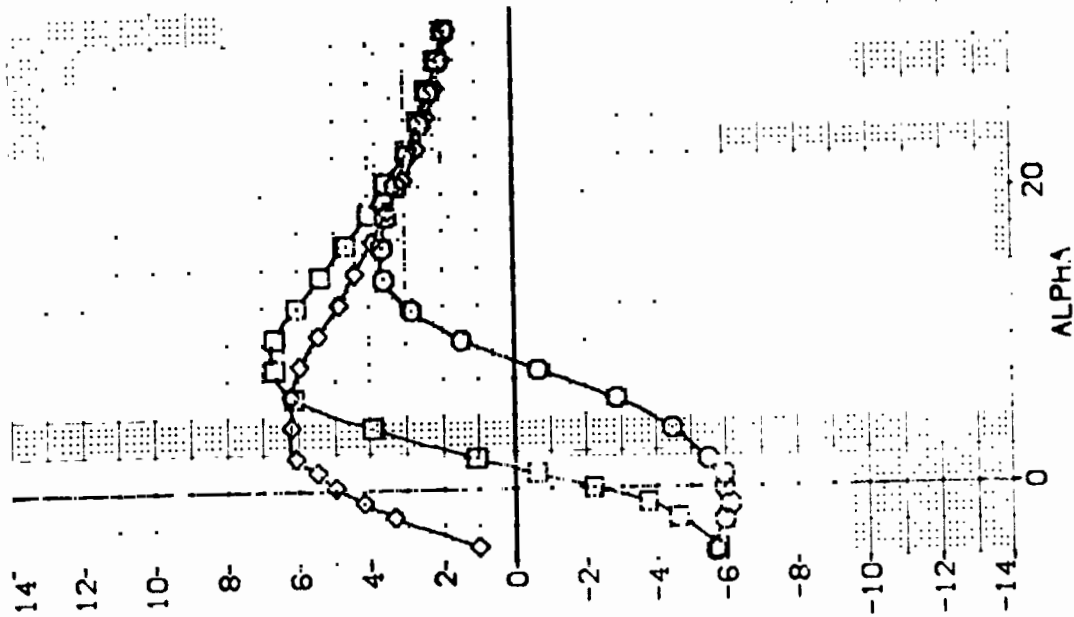
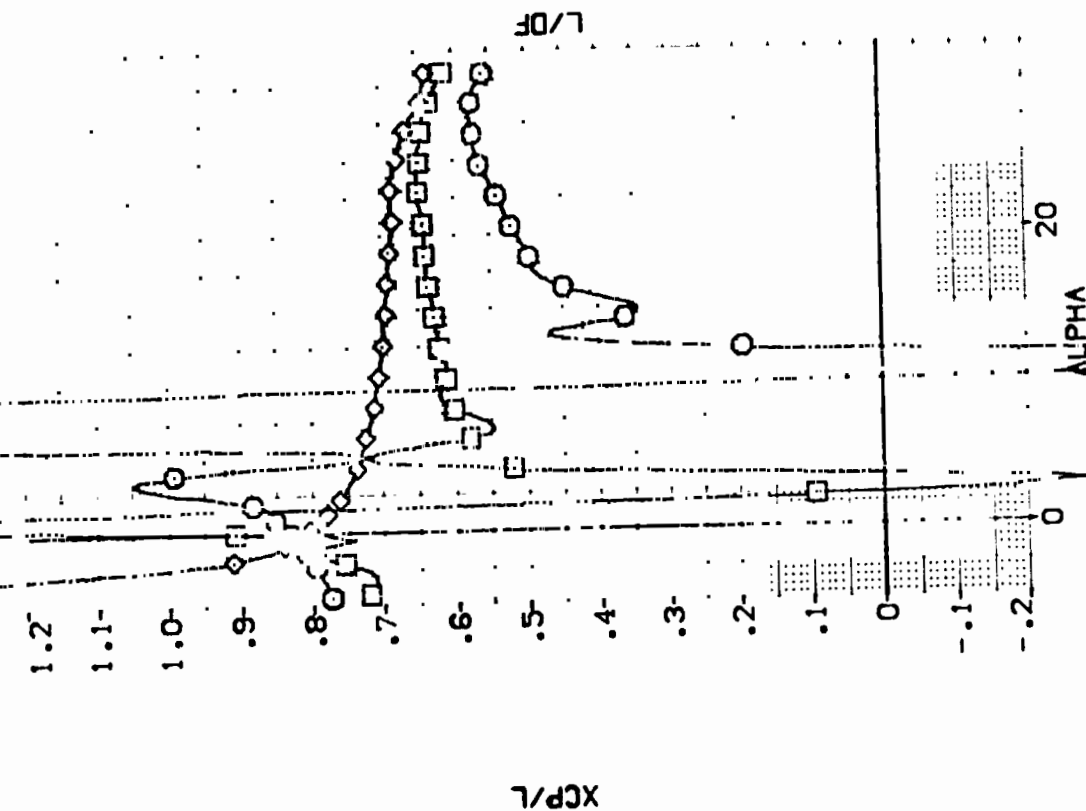


FIG 14 ELEVON EFFECTIVENESS. ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.

CA110MACH = .20

INCREMENTAL FORWARD ERROR (ft)

ELEVATION ANGLE, DEGREES

Elevation Angle (Degrees)	Incremental Forward Error (ft)
-20	-1.4
-10	-0.7
0	0.0
10	0.7
20	1.4

FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BDFLAP = -11.7 DEG.

0A110 B61C11F12M51W124E42V19R15X29

(KF5033)

SYMBOL
☐ ☐ ☐ ☐

PARAMETRIC VALUES
 ALPHA 16.000
 20.000
 24.000
 28.000
 MACH .200
 BOFLAP -12.000
 RUDDER .000
 AILRON SPDRK BETA

DATA SOURCE
 ELEVON
 -20.000
 15.000

DATASET
 KF5035

ELEVON
 .000

REF
 XREF
 YREF
 ZREF
 SCALE

REFERENCE INFORMATION
 4.4119
 19.2299
 37.9359
 43.5974
 .0000
 15.1875
 .0405
 SQ.FT.
 INCHES
 INCHES
 INCHES
 INCHES
 INCHES
 SCALE

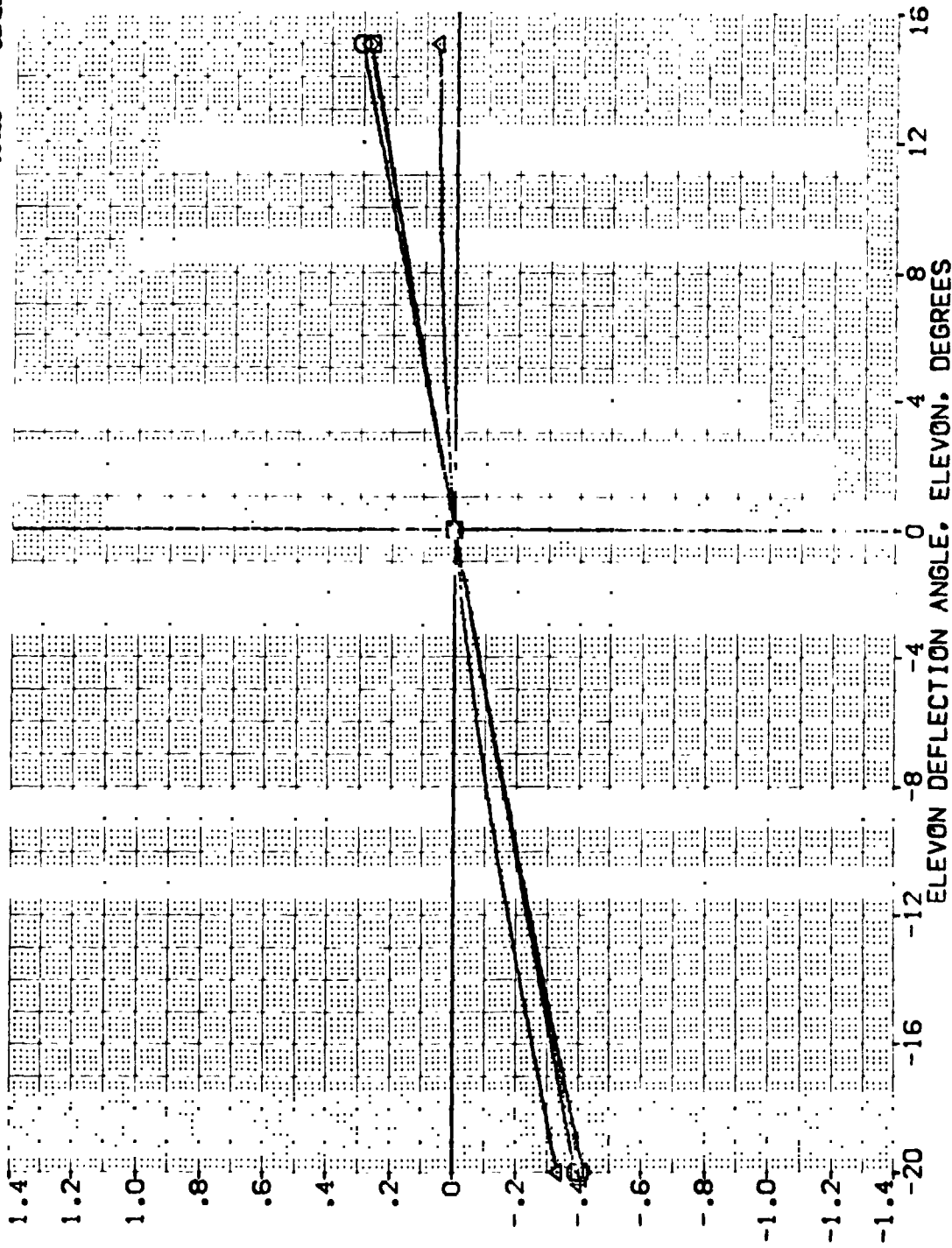


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.



(KF5033)

0A110 B61C11F12M51W124E42V19R15X29

SYMBOL	ALPHA	MACH	BOFLAP	RUDER	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	-4.000				.200 AILRON	.000 DATASET	4.4119
□	.000				-12.000 SPDRK	25.000 KF5033	19.2258
◇	4.000				.000 BETA	.000 KF5034	37.9359
△	8.000						43.5674
	12.000						.0000
							15.1875
							.0405
							SCALE

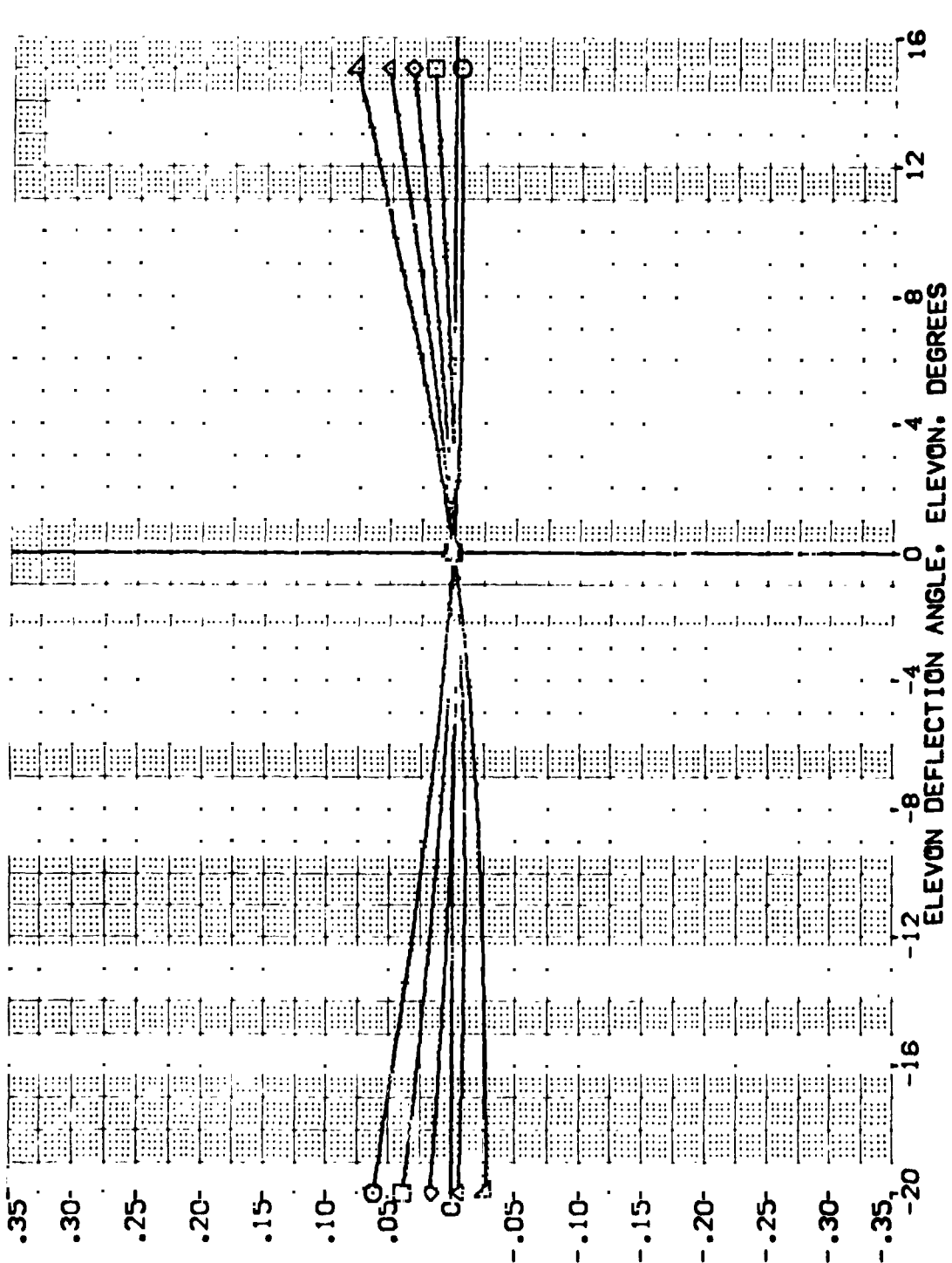


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.

0A110 B61C11F12M51W124E42V19R15X29 (KF5033)

PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
ALPHA	MACH	BDFLAP	RUDER	AILRON	SPDRK	BETA	ELEVON	DATASET	ELEVON	SREF	SO.FT.
16.000				.200			.000	KF5035	.000	LREF	4.4119
20.000				-12.000			.000	KF5033	.000	BREF	19.2269
24.000				.000			.000	KF5034	.000	XTRP	37.9263
28.000							.000	KF5034	.000	YTRP	43.5874
							.000	KF5034	.000	ZTRP	.0000
							.000	KF5034	.000	SCALE	15.1875
							.000	KF5034	.000	SCALE	.0405

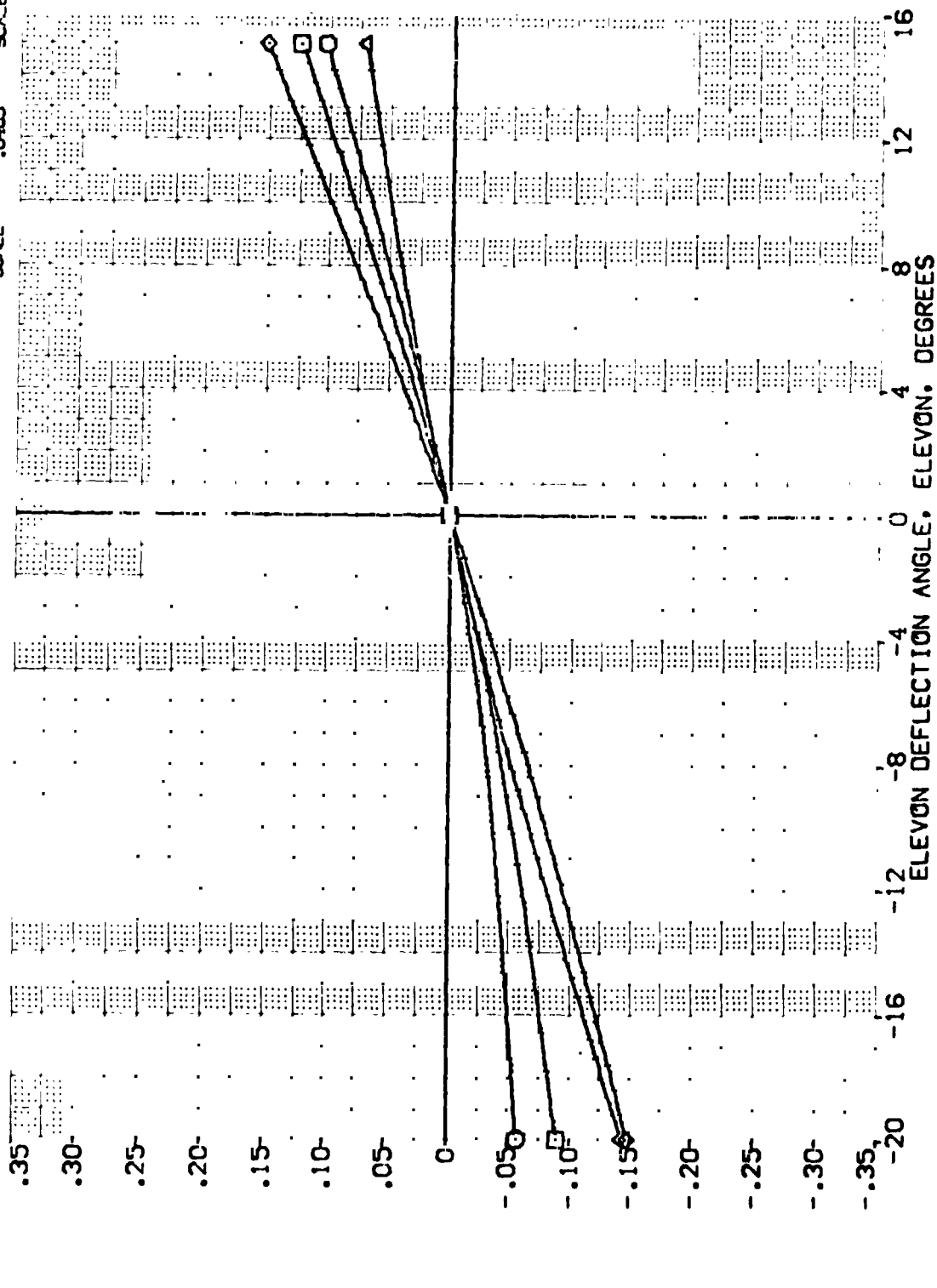


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BDFLAP = -11.7 DEG.

0A110 861C11F12M51W124E42V19R15X29 (KF5033)

SYMBOL	ALPHA	MACH	BOFLAP	RUDDER	PARAMETRIC VALUES	DATA SOURCE	DATA SET	ELEVON	REF	REFERENCE INFORMATION
○	-4.000	.200	.000	.000	AILRON	ELEVON	KF5035	.000	SREF	4.4119
□	.000	-12.000	.000	.000	SPDRK	-20.000	KF5033	.000	UREF	19.2259
◇	4.000	.000	.000	.000	BETA	15.000	KF5034	.000	BREF	37.9359
△	8.000	.000	.000	.000				.000	XPRP	43.5974
▽	12.000	.000	.000	.000				.000	YPRP	.0000
								.000	ZPRP	15.1875
								.0405	SCALE	INCHES
										SO. FT.

INCREMENTAL FOREBODY PITCHING MOMENT COEFFICIENT, DCLM

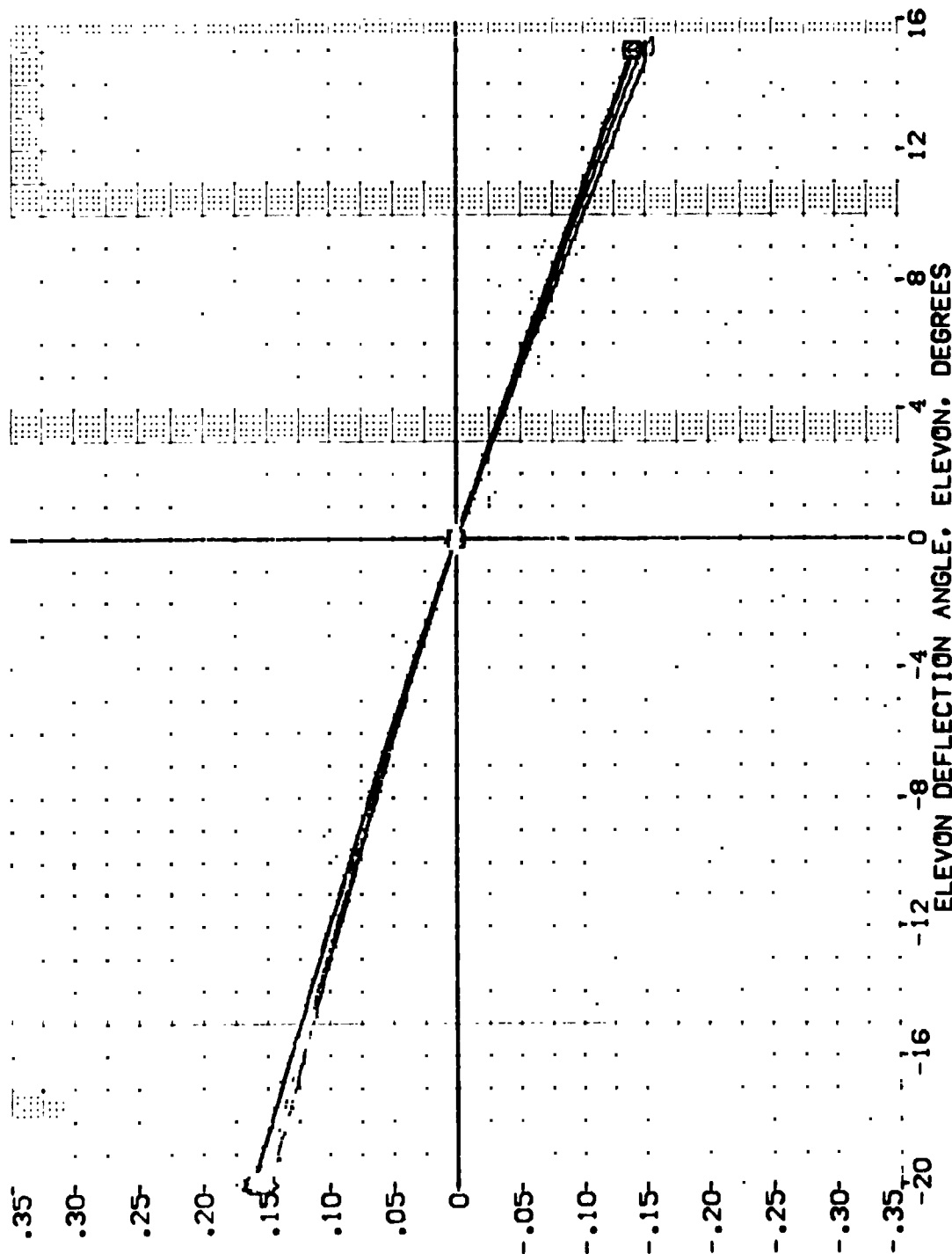


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.

0A110 B61C11F12M51W124E42V19R15X29 (KF5033)

PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
ALPHA	MACH	BOFLAP	RUDDER	.000	.000	.000	.000	SPREF	LRREF	YREF	ZREF
16.000	20.000	24.000	28.000	25.000	KF5033	.000	KF5034	4.4118	19.2259	37.9359	43.5974
								INCHES	INCHES	INCHES	INCHES
								SCALE	SCALE	SCALE	SCALE
								.0405	.0405	.0405	.0405

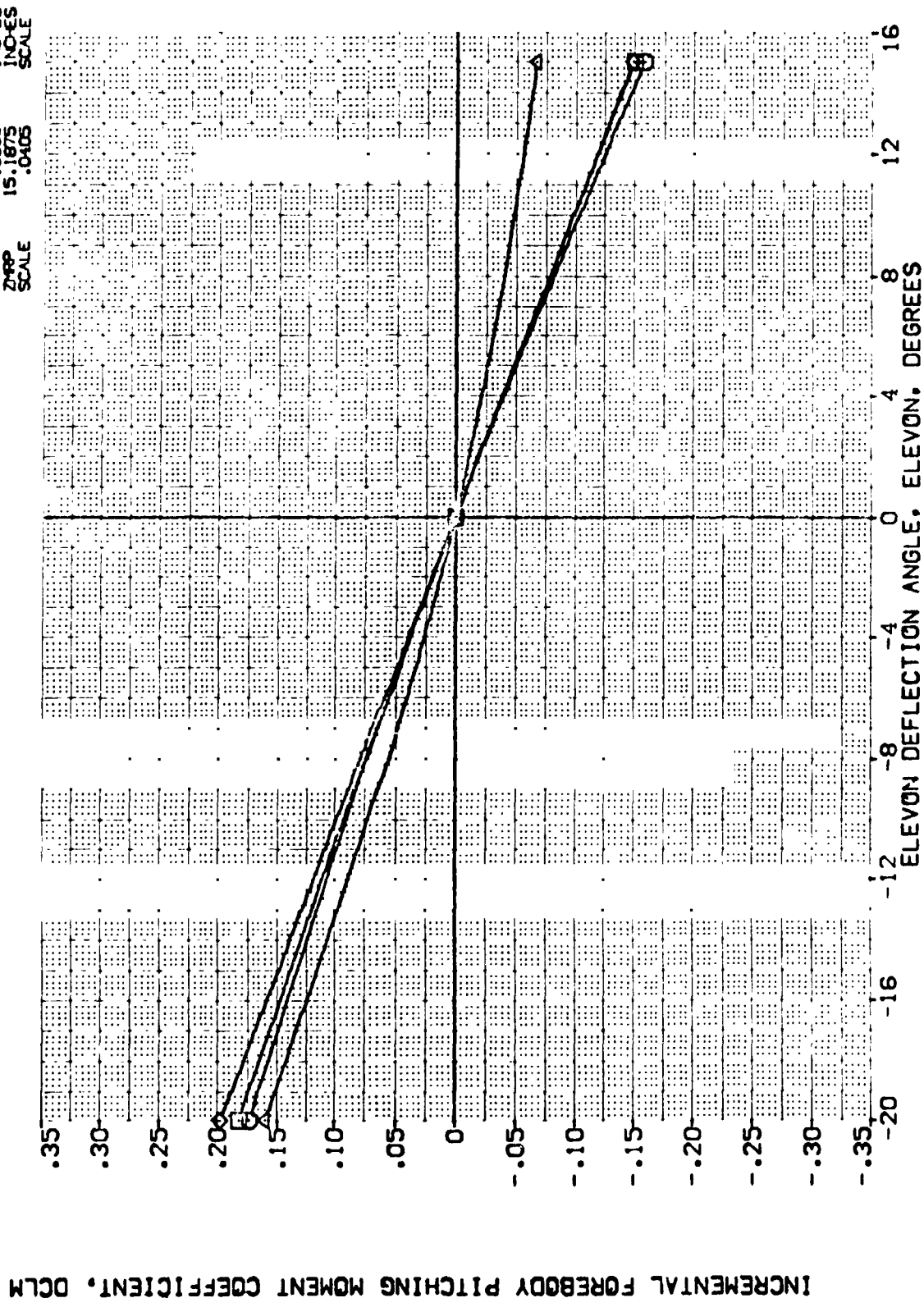


FIG 14 ELEVON EFFECTIVENESS, ELEVON SEALS REMOVED, BOFLAP = -11.7 DEG.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	SPDRBK	AIRLON	REFERENCE INFORMATION
(R-3028)	GA110 BSIC11F12G1V124E40V1SR15Q28	10.000	.000	25.000	.000	SREF 4.4119 SO.FT. INO-ES
(R-5038)	GA110 BSIC11F12G1V124E40V1SR15Q28	10.000	.000	25.000	.000	LREF 19.2259 INO-ES
(R-5040)	GA110 BSIC11F12G1V124E40V1SR17Q28	10.000	.000	25.000	.000	BREF 37.9359 INO-ES
(R-3036)	GA110 BSIC11F12G1V124E40V21R15Q28	10.000	.000	25.000	.000	YHREF 43.5874 INO-ES
					.0000	ZHREF 15.1875 INO-ES
						SCALE .0405 SCALE

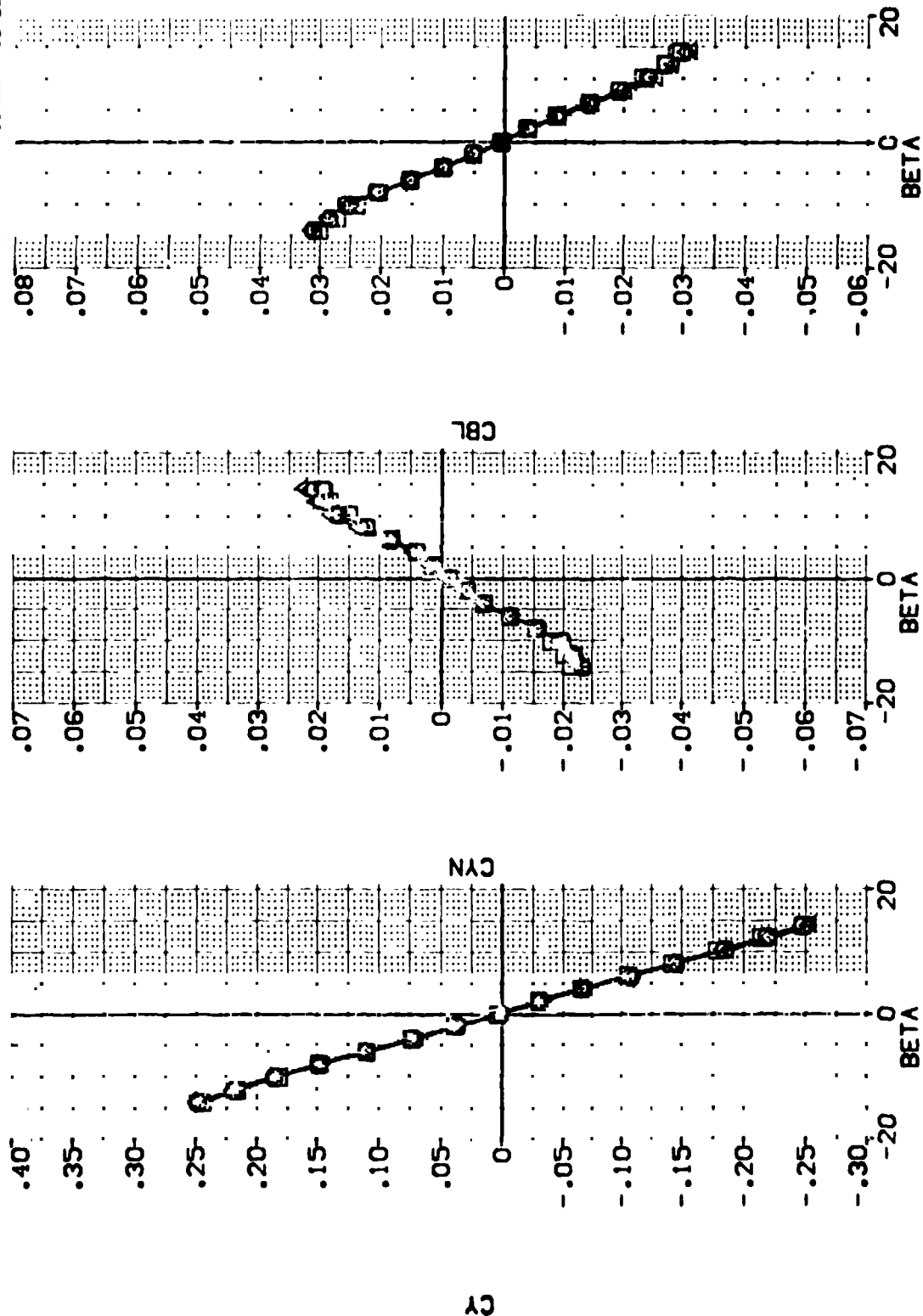


FIG 15 EFFECT OF RUDDER SEALS. SPDRBK = 25 DEG., ALPHA = 10 DEG.

(A)MACH = .20

DATA SET SYMBL. CONFIGURATION DESCRIPTION

0A110	BSIC11F12G51V124E40V19R15X29
0A110	BSIC11F12G51V124E40V19R15X29
0A110	BSIC11F12G51V124E40V19R17X29
0A110	BSIC11F12G51V124E40V21R15X29

REFERENCE INFORMATION

MACH	ELEVON	AILRON	BOFLAP	SREF	4.4119	SQ.FT.
.200	.000	.000	-12.000	LREF	19.2299	INCHES
.200	.000	.000	-12.000	BREF	37.9359	INCHES
.200	.000	.000	-12.000	YMRP	43.5974	INCHES
				ZMRP	.0000	INCHES
				SCALE	15.1875	INCHES
					.0405	SCALE

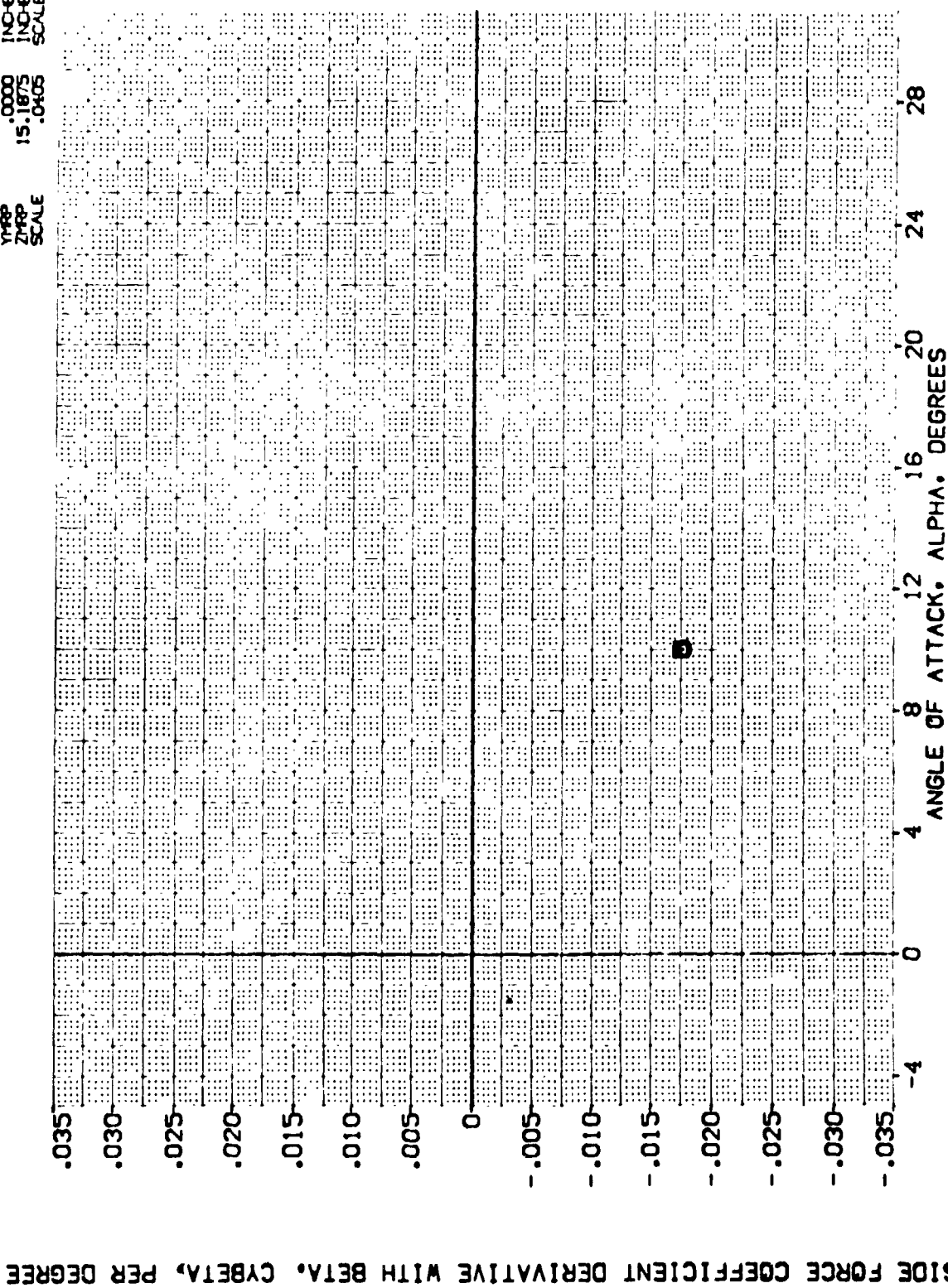


FIG 15 EFFECT OF RUDDER SEALS, SPDBRK = 25 DEG., ALPHA = 10 DEG.

DATA SET SYMBL	CONFIGURATION DESCRIPTION	MACH	ELEVON	AILRON	BOFLAP	REFERENCE INFORMATION
(MF5028)	0A110 BSIC11F1251V124E40V1SR15028	.200	.000	.000	-12.000	BREF 4.4119 SQ.FT.
(MF5029)	0A110 BSIC11F1251V124E40V1SR16029	.200	.000	.000	-12.000	LREF 19.2259 INO-ES
(MF5030)	0A110 BSIC11F1251V124E40V1SR17030	.200	.000	.000	-12.000	BREF 37.9359 INO-ES
(MF5035)	0A110 BSIC11F1251V124E40V21R15035	.200	.000	.000	-12.000	YREF 43.5974 INO-ES
						ZREF .0000 INO-ES
						SCALE 15.1875 INO-ES
						SCALE .0405

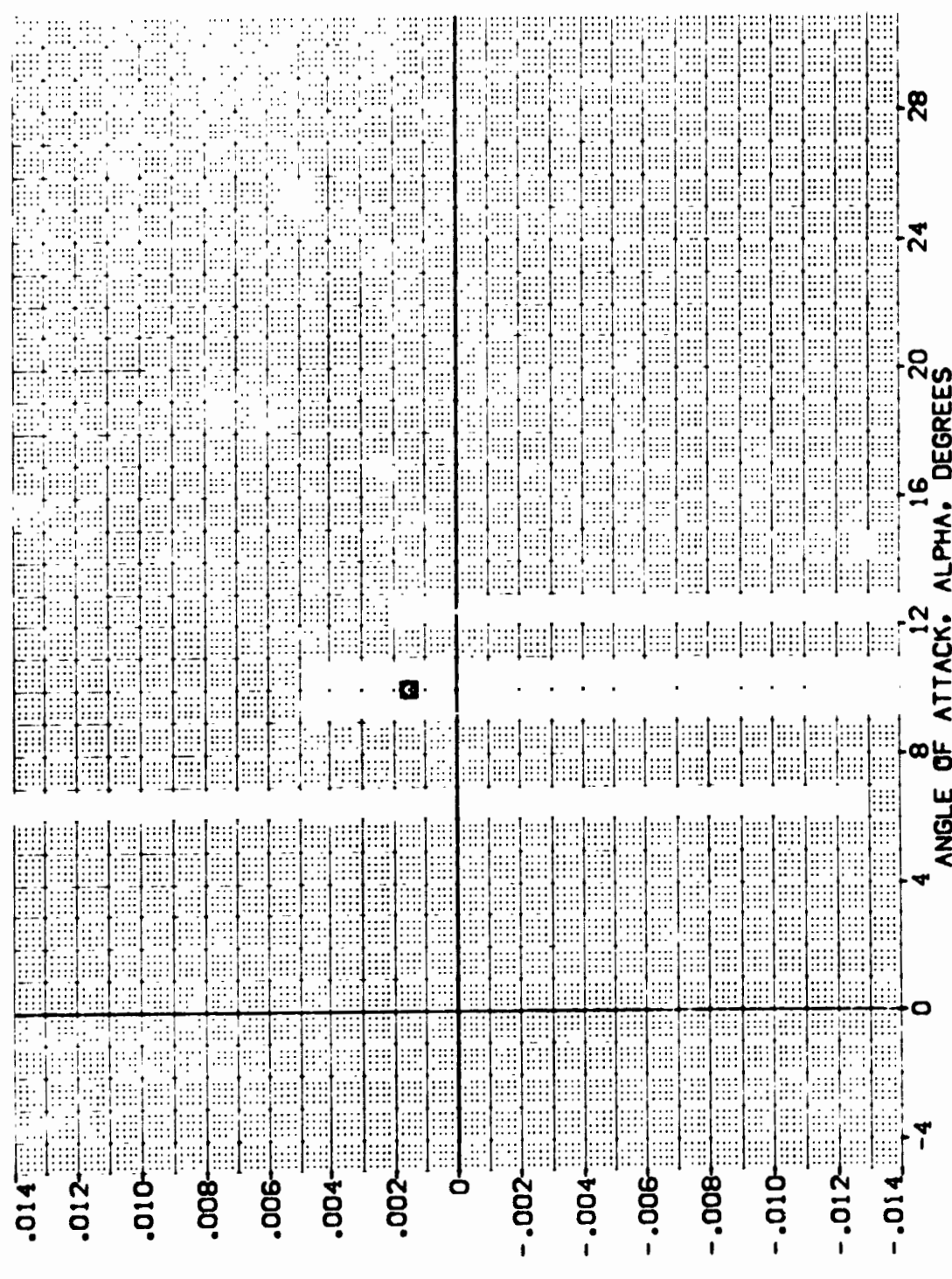


FIG 15 EFFECT OF RUDDER SEALS, SPOBRK = 25 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H-3028) Q 0110 051C11F1251V124E40V19R15X23
 (H-3038) X 0110 031C11F1251V124E40V19R16X23
 (H-3040) X 0110 031C11F1251V124E40V19R17X23
 (H-3056) X 0110 051C11F1251V124E40V21R15X23

MACH ELEVON AIRRON BDFLAP REFERENCE INFORMATION
 .200 .000 .000 SREF 4.4118 50. FT
 .200 .000 .000 LREF 19.2298 IN-ES
 .200 .000 .000 BREF 37.9359 IN-ES
 .200 .000 .000 XPRP 43.5974 IN-ES
 .200 .000 .000 YPRP .0000 IN-ES
 .200 .000 .000 ZPRP 15.1875 IN-ES
 .200 .000 .000 SCALE .0405

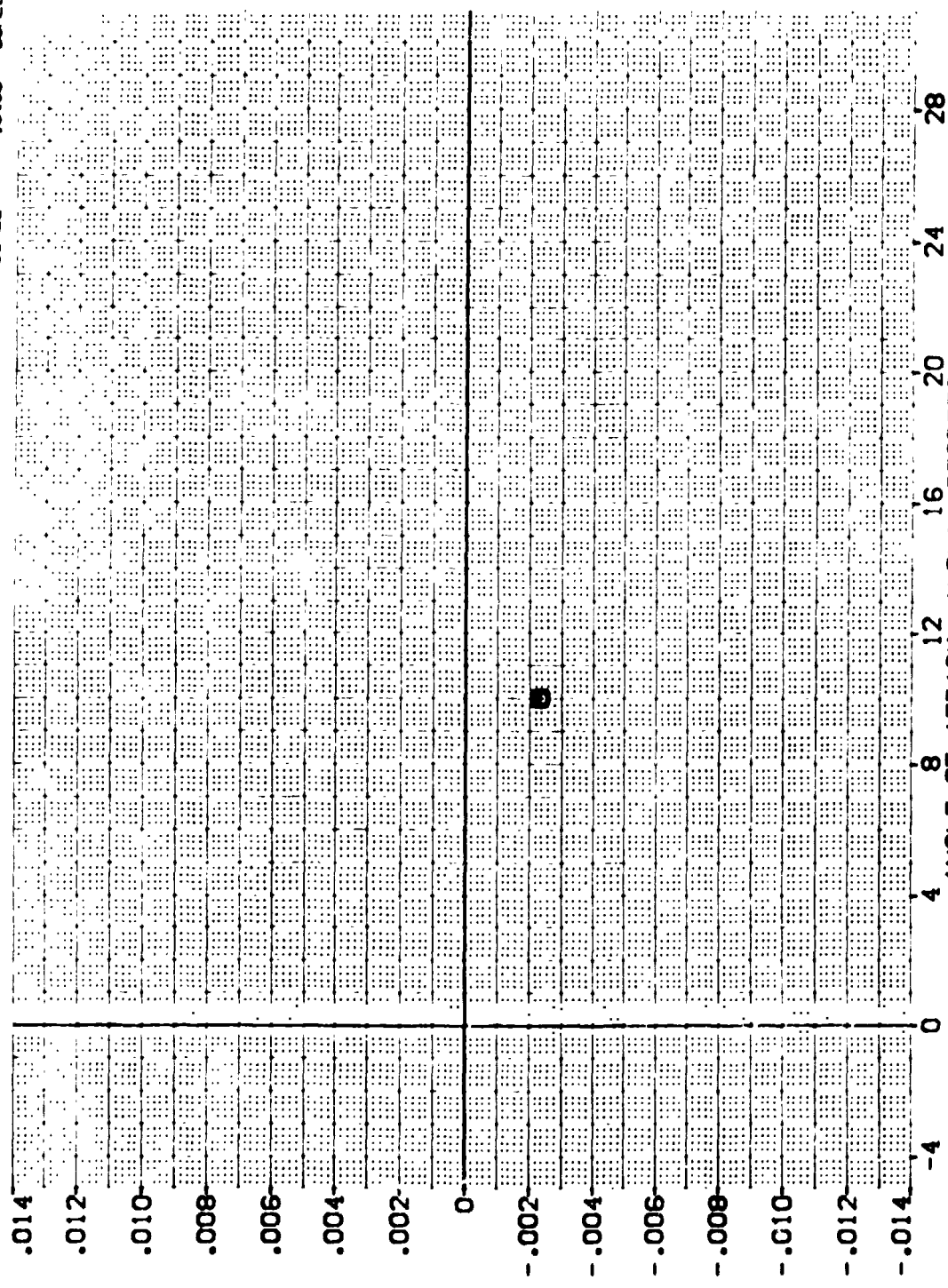


FIG 15 EFFECT OF RUNNER SEALS, SPOBRK = 25 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (R5021) 0A110 BSIC11F12-S1V124E40V1SR15029
 (R5023) 0A110 BSIC11F12-S1V124E40V1SR15029
 (R5044) 0A110 BSIC11F12-S1V124E40V1SR15029

ALPHA RUDDER SPEEDBRK AIRLON
 10.000 .000 .000 .000
 10.000 .000 .000 .000
 10.000 .000 .000 .000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2299 INCHES
 BREF 37.5359 INCHES
 XPRP 43.5974 INCHES
 YPRP .0000 INCHES
 ZPRP 15.1875 INCHES
 SCALE .0405 SCALE

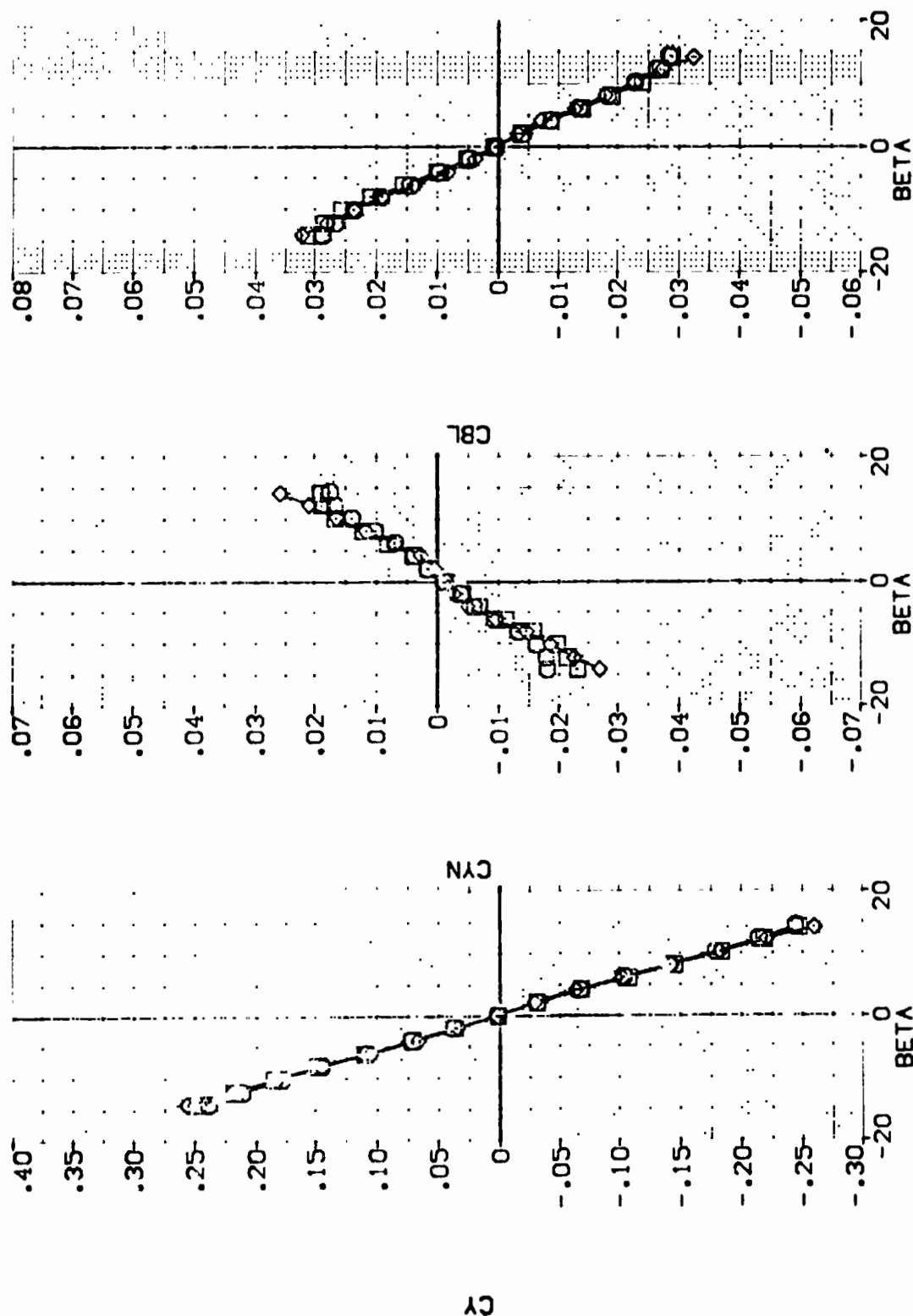


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

CAJ MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (MF5021) 0A110 B61C11F12M51V124E40V19R15X29
 (MF5028) 0A110 B61C11F12M51V124E40V19R15X29
 (MF5044) 0A110 B61C11F12M51V124E40V19R15X29

MACH ELEVON AILERON BETA
 .200 .000 .000
 .200 .000 .000
 .200 .000 .000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2259 IN.-ES
 BREF 37.9359 IN.-ES
 YMRP 43.5974 IN.-ES
 ZMRP .0000 IN.-ES
 SCALE 15.1875 IN.-ES
 .0405

SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

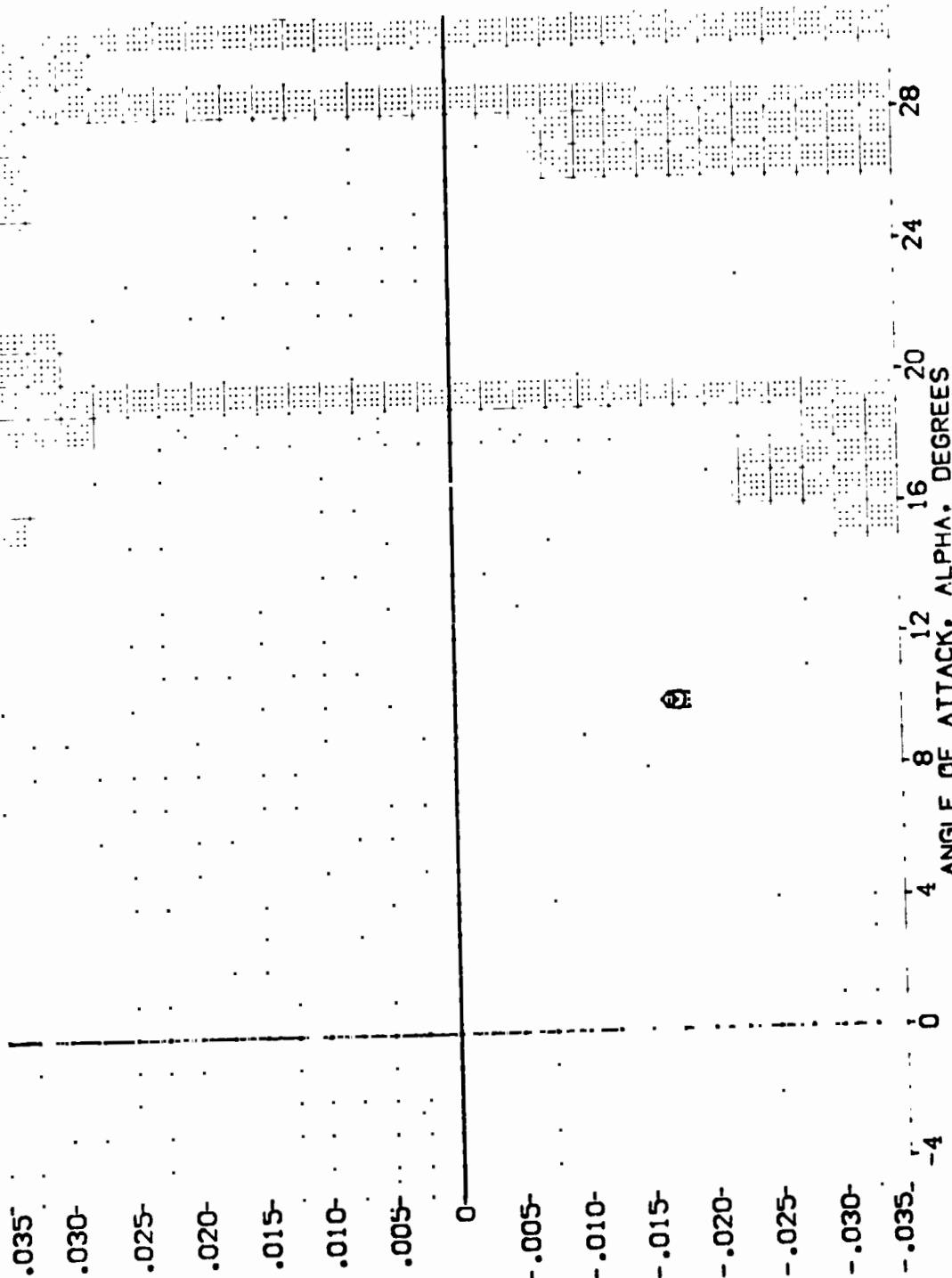
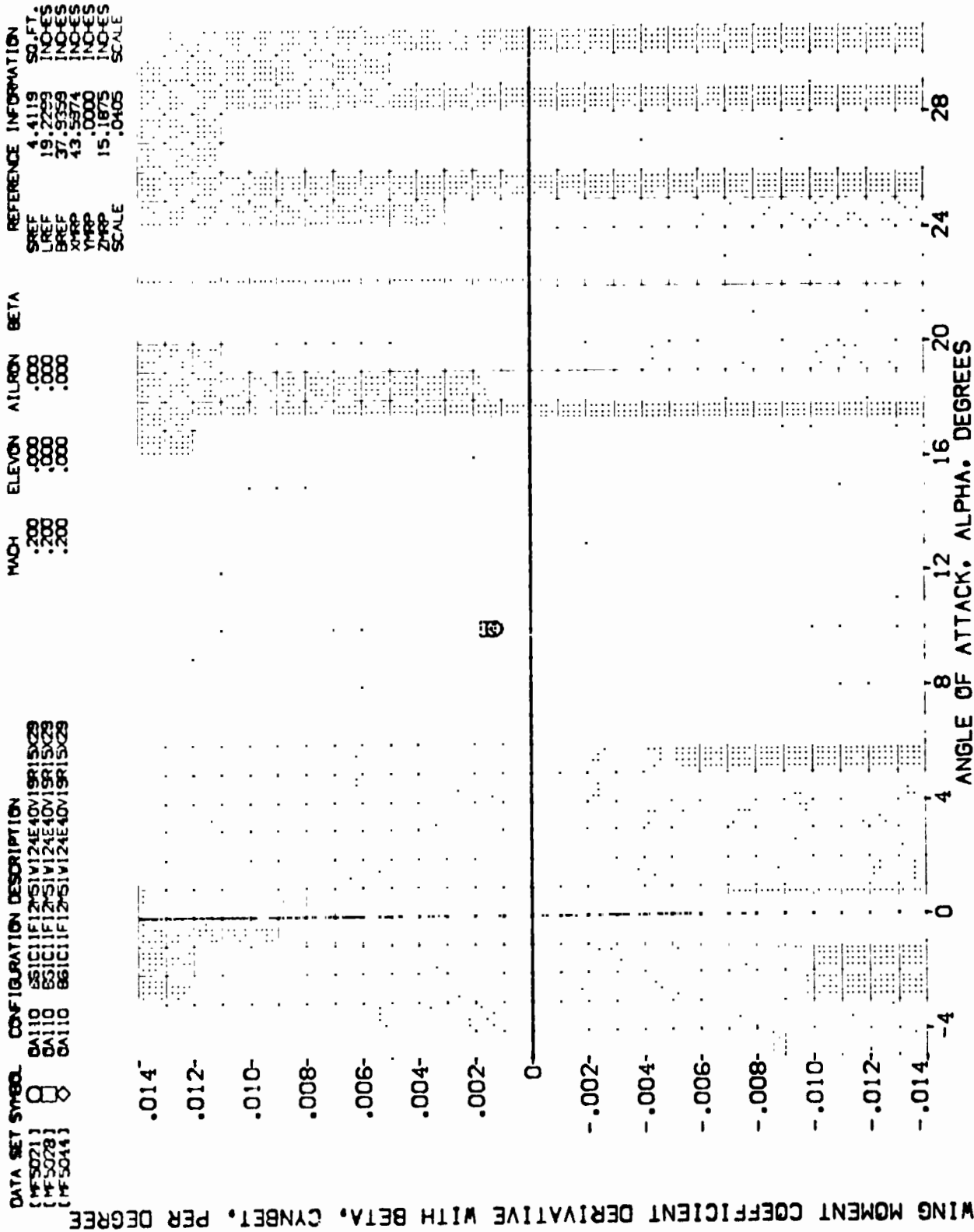


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.





DATA SET SYMBOL CONFIGURATION DESCRIPTION REFERENCE INFORMATION

MF5021	0A110	BSIC11F12P51V124E40V18R15C28	SREF	4.4119	50.FT.
MF5028	0A110	BSIC11F12P51V124E40V18R15C28	LREF	19.2298	INCHES
MF5044	0A110	BSIC11F12P51V124E40V18R15C28	BREF	37.9358	INCHES
			XMRP	43.5574	INCHES
			YMRP	.0000	INCHES
			ZMRP	15.1875	INCHES
			SCALE	.0405	SCALE

MACH ELEVON ALLRON BETA

.200	.000	.000
.200	.000	.000
.200	.000	.000

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBLBET, PER DEGREE

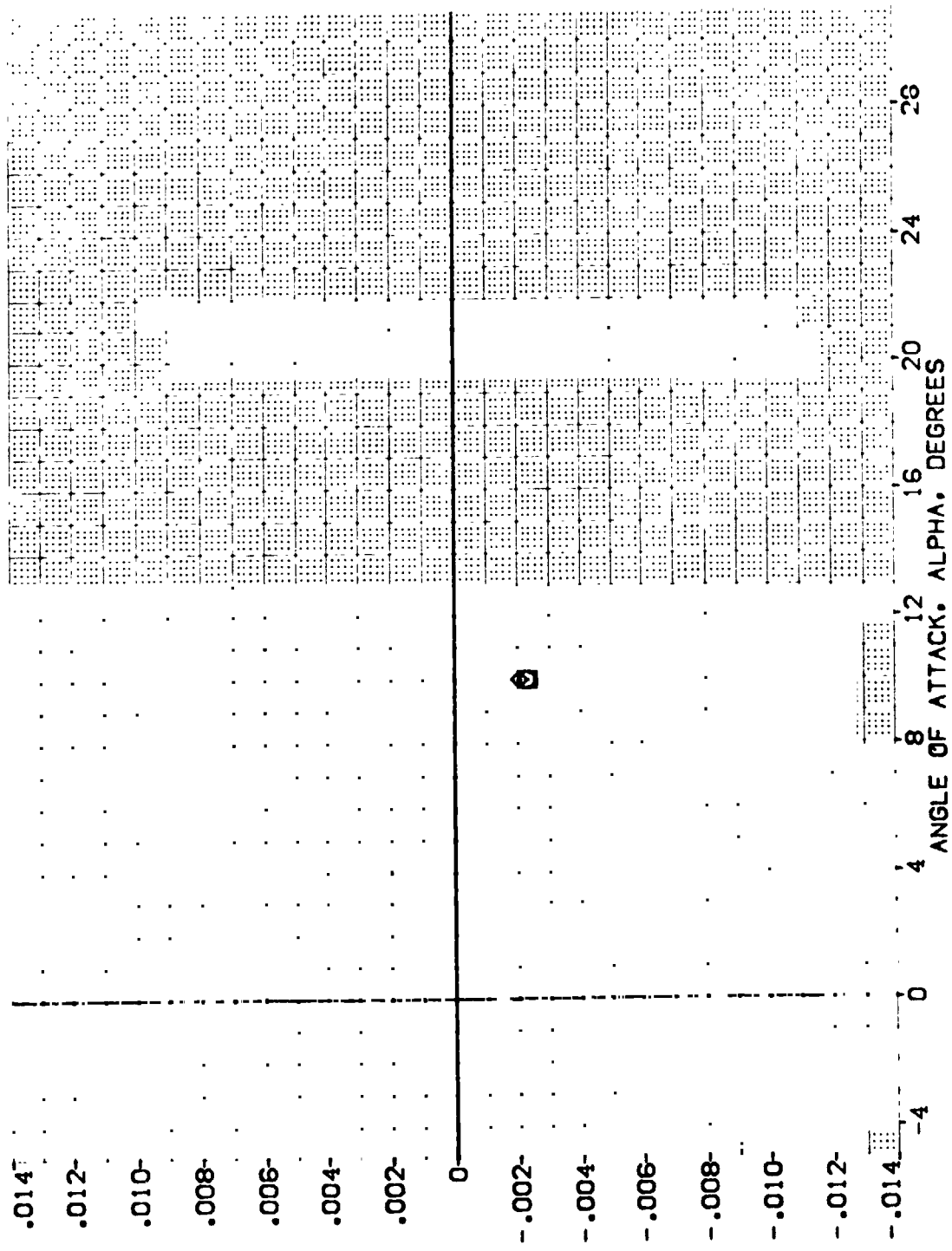
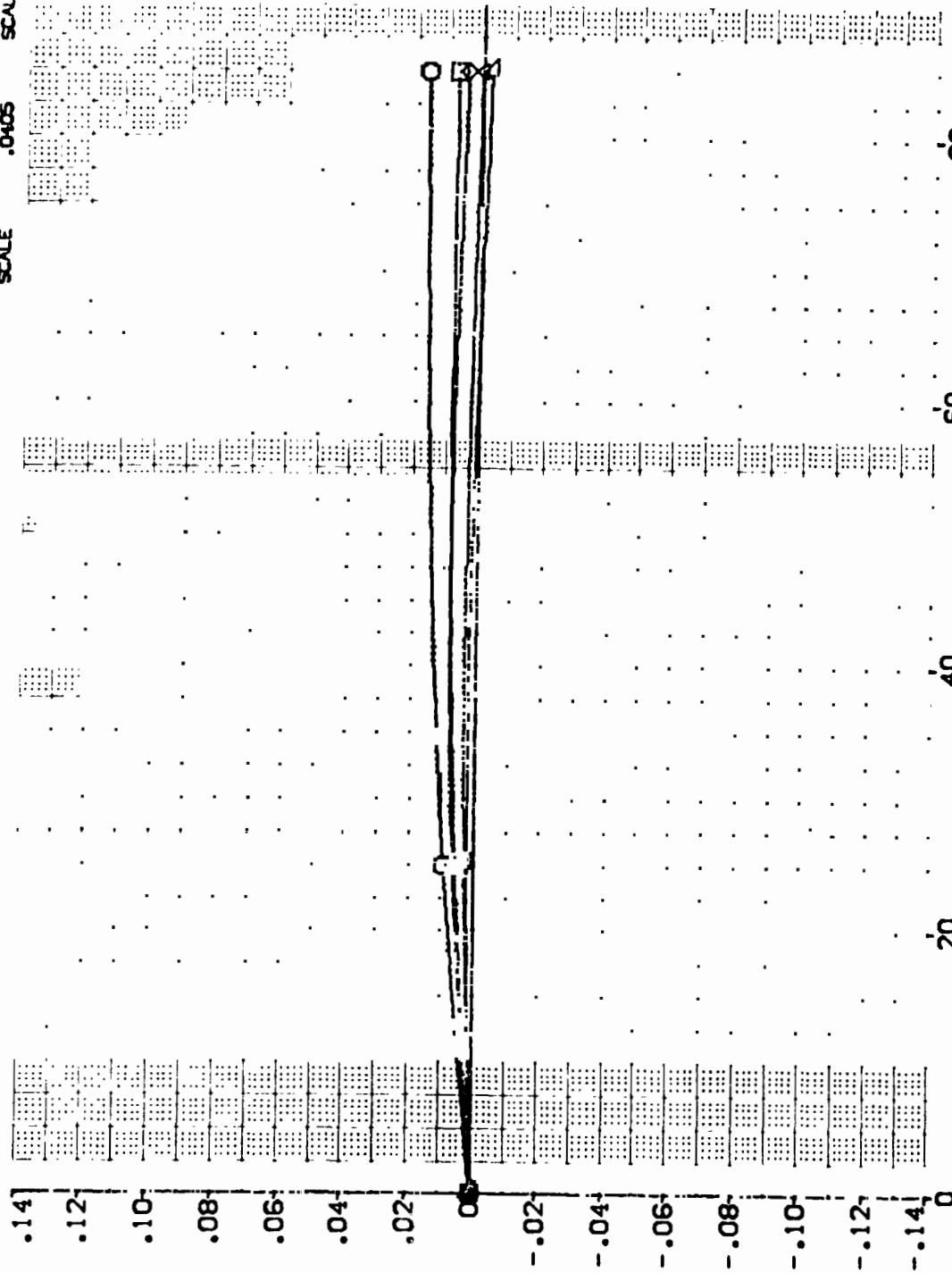


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12MS1W124E40V19R15X29

(CF5021)

SYMBOL	BETA	MACH	PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION			
			ALPHA	BOFLAP	AILRON	SPDRBK	DATASET	SREF	DATASET	SREF	SO.F.T.
○	-14.000	RUDER	.200	.000	.000	10.000	SPDRBK	CF5028	LREF	19.2239	INCHES
□	-12.000	ELEVON	.000	.000	.000	-12.000	SPDRBK	CF5021	BREF	37.5359	INCHES
◇	-10.000		.000	.000	.000	.000	SPDRBK	CF5044	XTRP	43.5874	INCHES
△	-8.000						SPDRBK		YTRP	.0000	INCHES
▽	-6.000						SPDRBK		ZTRP	15.1875	INCHES
							SPDRBK		SCALE	.0405	SCALE



SPEEDBRAKE DEFLECTION DEFLECTION ANGLE, DEGREES

FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (CF5021)

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA	MACH	ALPHA	BOFLAP	AILRON	SPDRK	DATASET	SPDRK	SREF	SQ.FT.	IND-ES	IND-ES
-4.000		.200				CF5021	25.000	LREF	4.4119	19.2299	37.5359
-2.000	RUDDER	.000			.000	CF5044		XREF	43.5974	15.1875	15.0405
.000	ELEVON	.000			85.000			YREF			
2.000								ZREF			
4.000								SCALE			

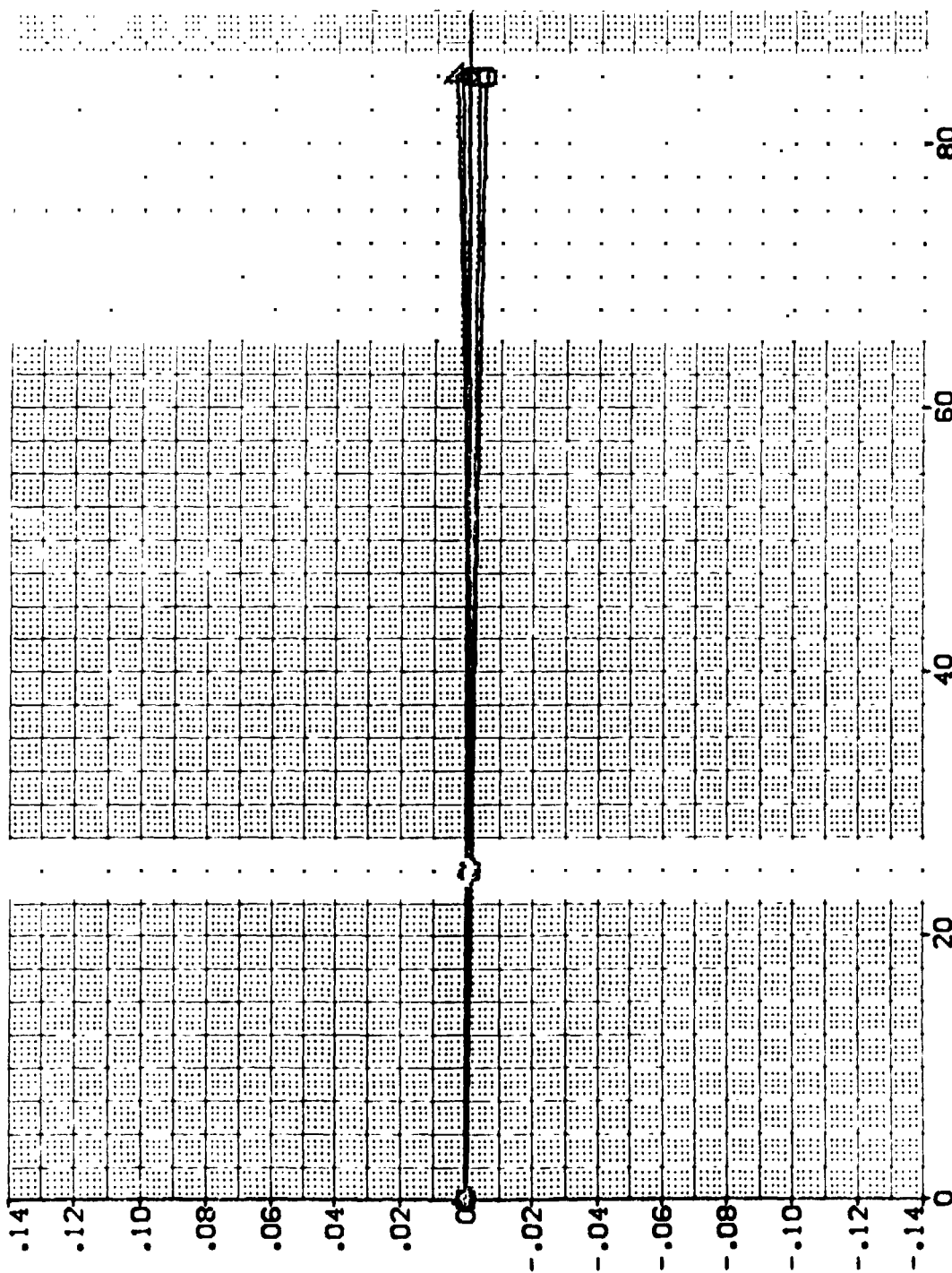


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (CF5021)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	□	6.000	MACH	.200	ALPHA	SPOBRK	REF	4.4119	50.FT.
◇	◇	8.000	RUDDER	.000	BDPLAP	25.000	LREF	19.2299	INCHES
▽	▽	10.000	ELEVON	.000	AILRON	CF5021	BREF	37.5359	INCHES
		12.000				CF5044	XPRP	43.5974	INCHES
		14.000					YPRP	.0000	INCHES
							ZPRP	15.1875	INCHES
							SCALE	.0403	SCALE

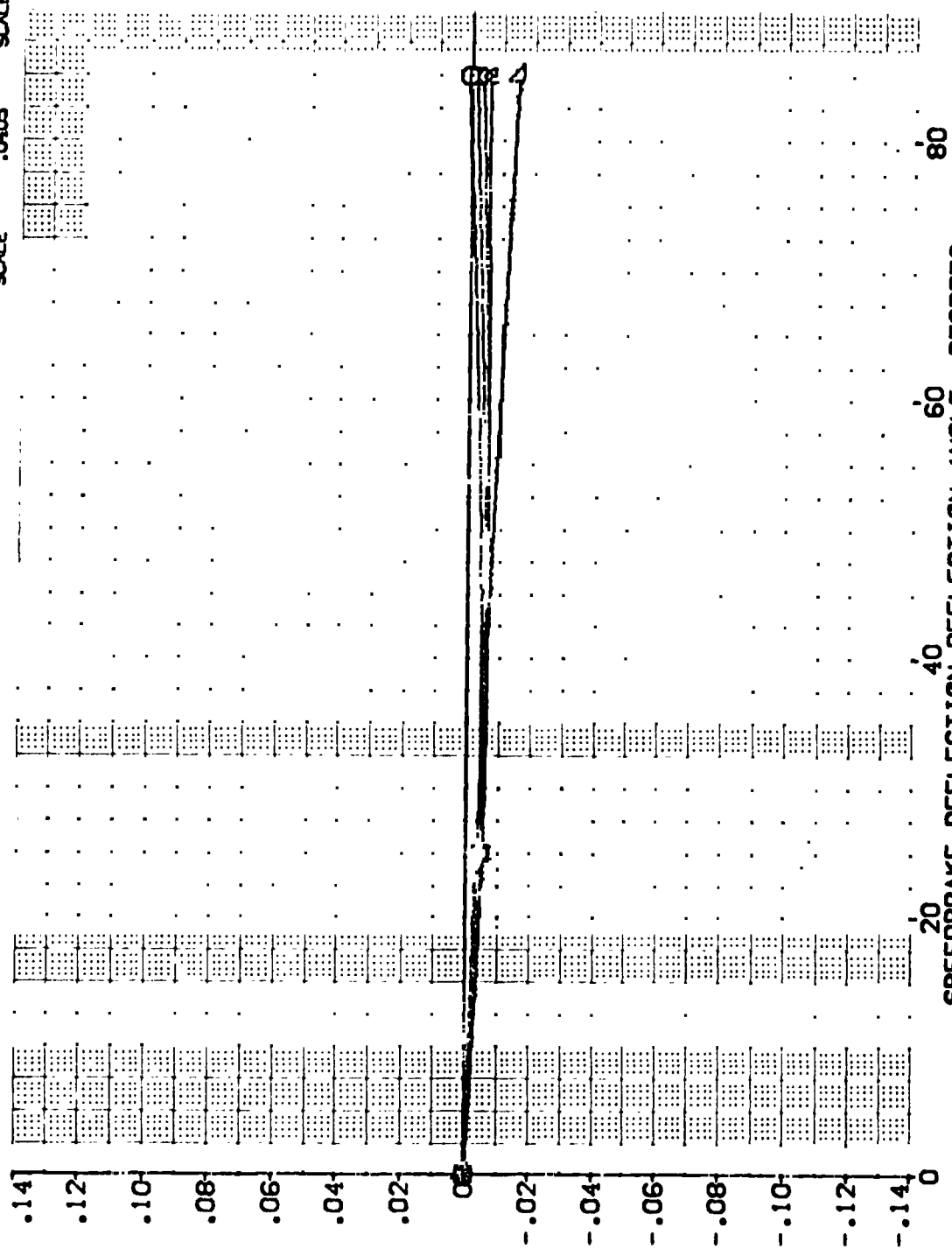


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

(CF5021)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL	PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION				
	BETA	MACH	RUDDER ELEVON	ALPHA	BD FLAP	AIRLON	10.000	DATASET	SPOBRK	SREF
○	-14.000			.200			-12.000	CF5021	.000	4.4119
□	-12.000			.000			.000	CF5021	25.000	19.2259
◇	-10.000			.000			.000	CF5044	.000	37.9359
△	-8.000						.000			43.5974
▽	-6.000									15.1875
										SCALE

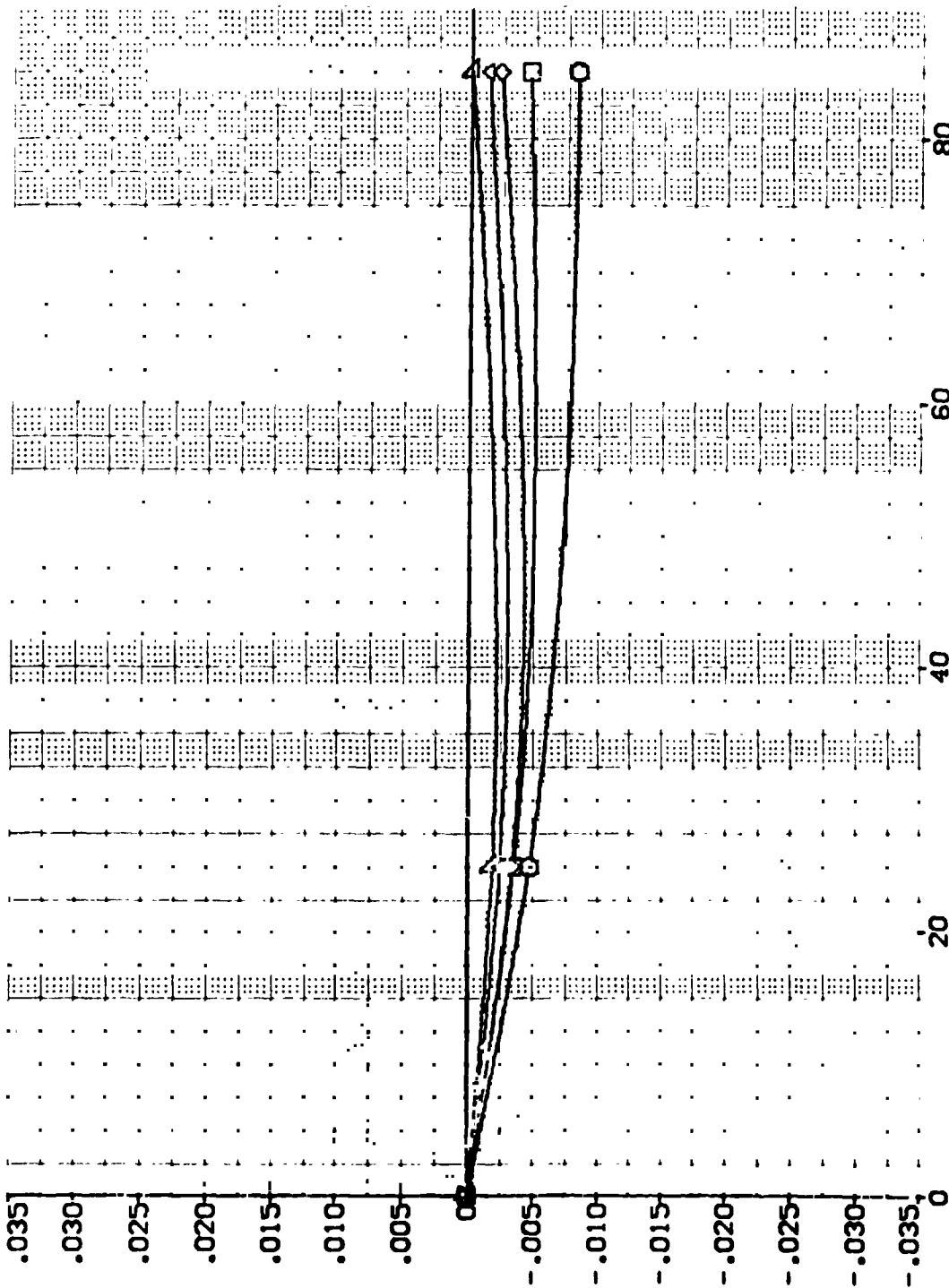
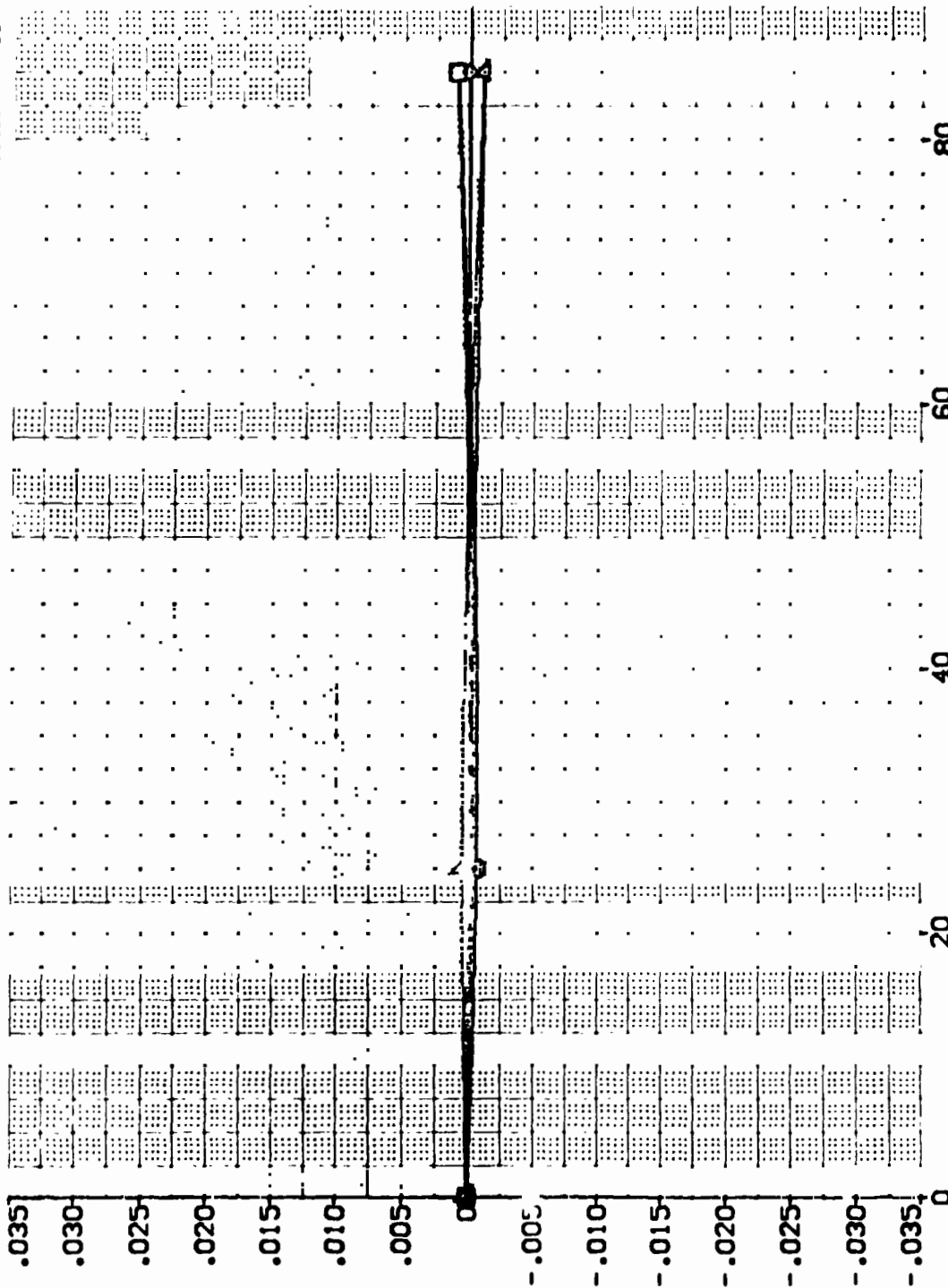


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29

(CF5021)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	□	-4.000	MACH	.200	ALPHA	10.000	DATASET	SPOBRK	SREF
◇	△	-2.000	RUDDER	.000	BOFLAP	-12.000	CF5021	25.000	19.2299
		.000	ELEVON	.000	AILRON	.000	CF5044	85.000	37.5359
		2.000							43.5574
		4.000							.0000
									15.1875
									.0405
									SCALE
									INCHES
									INCHES
									INCHES
									SCALE



SPEEDBRAKE DEFLECTION ANGLE, DEGREES

FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

(CF5021)

CA1:0 B61C11F12M51W124E40V19R15X29

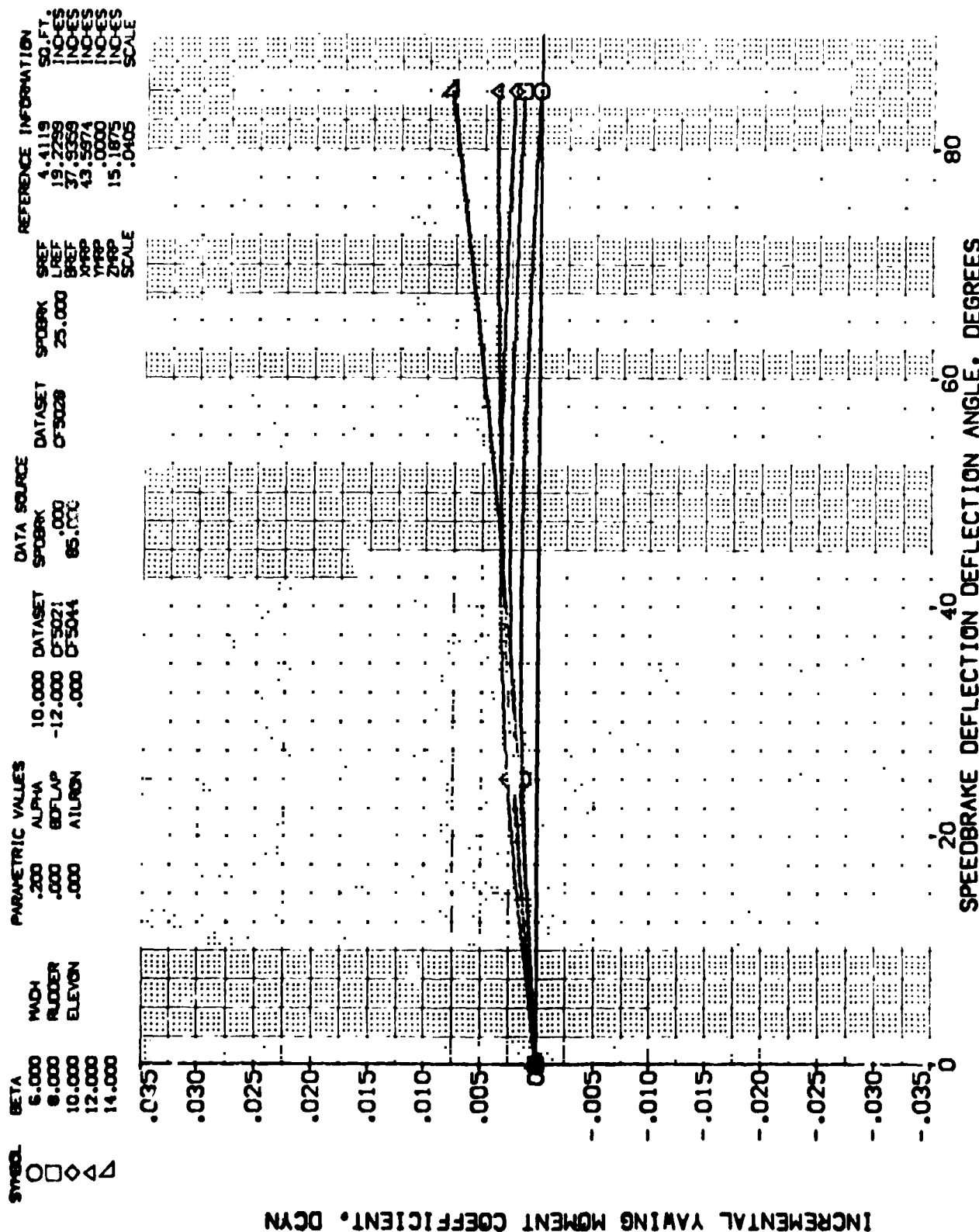


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

0A110 861C11F12M51W124E40V19R15X29

(CF5021)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
□	○	-14.000	MACH	.200	ALPHA	SPDBRK	25.000	REF	50. FT.
◇	△	-12.000	RUDDER	.000	BDFLAP	CF5021	CF5028	REF	19.2258
▽		-10.000	ELEVON	.000	AIRLON	CF5044	CF5044	REF	37.5558
		-8.000						REF	43.5574
		-6.000						REF	15.1875
								REF	.0405
								REF	SCALE

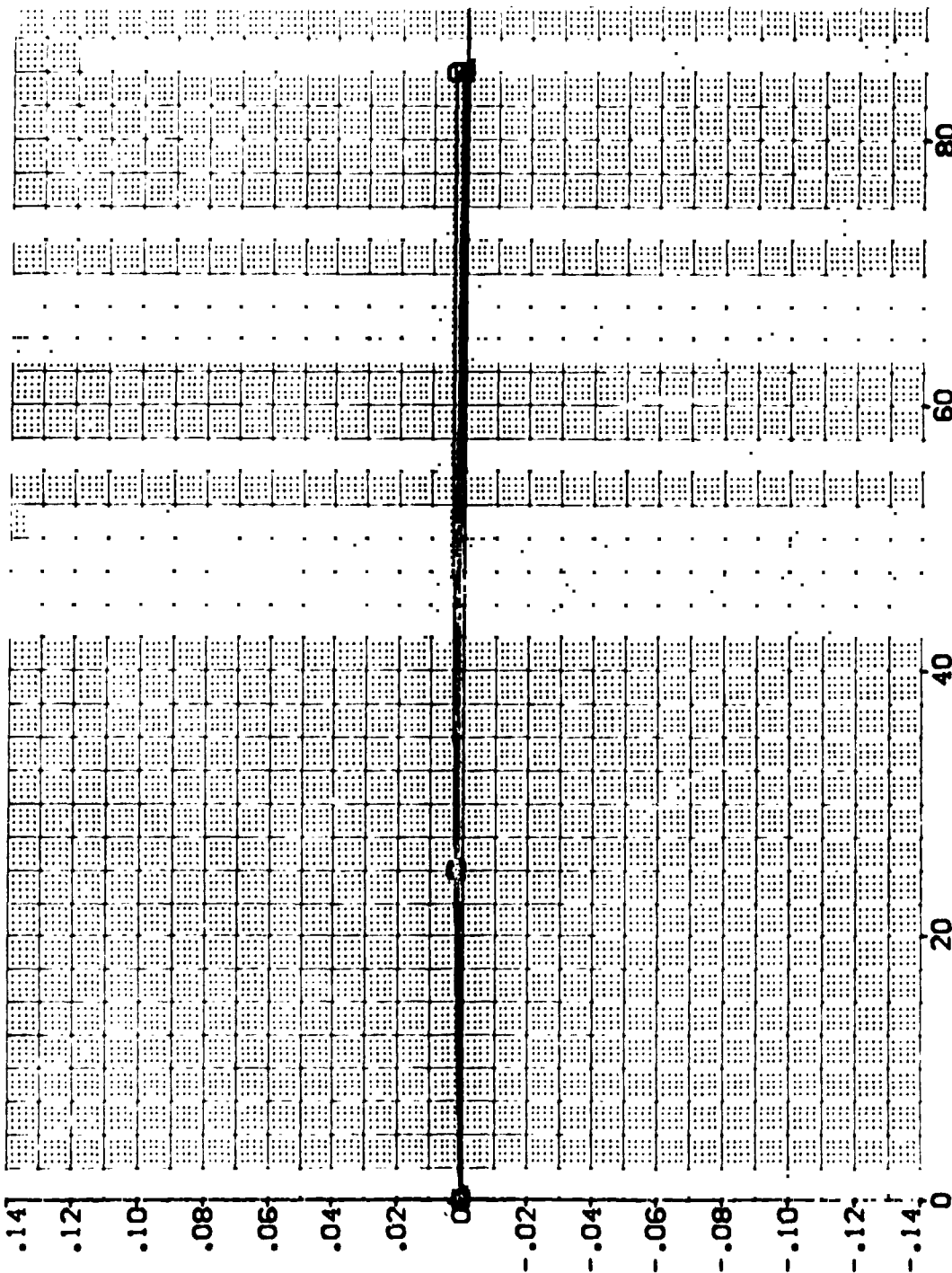


FIG 16 SPEEDBRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

0A110 861C11F12M51W124E40V19R15X29

(CF5021)

SWED.

BETA
-1.000
-2.000
.000
2.000
4.000

**WACH
FLÜCKER
ELEVEN**

**WACH
FLÜCKER
ELEVEN**

**WACH
FLÜCKER
ELEVEN**

PARAMETRIC VALUES

PARAMETRIC VALUES

PARAMETRIC VALUES

PARAMETRIC VALUES

DATA SOURCE

DATA SOURCE

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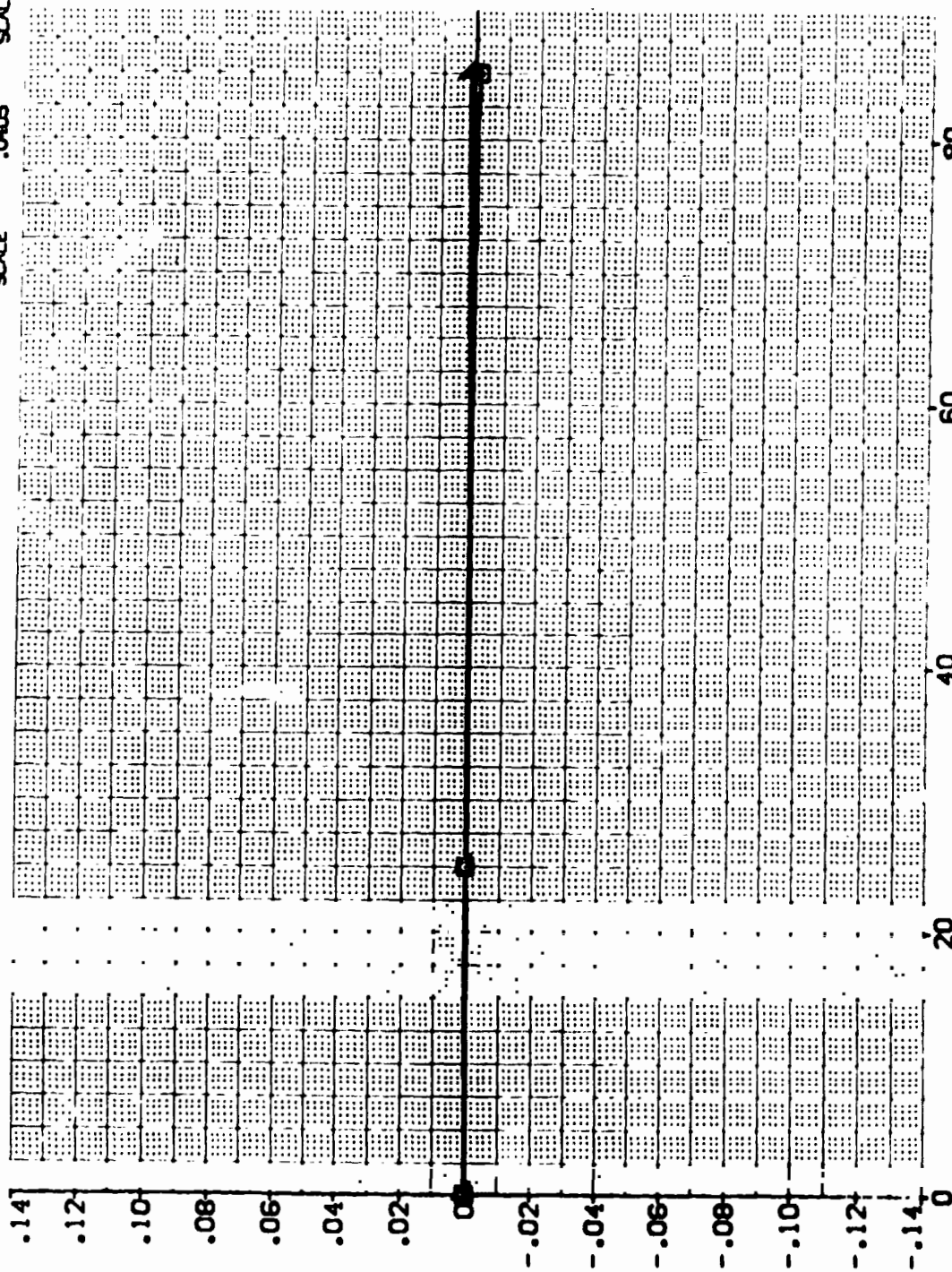


FIG 16 SPEEDBRAKE DEFLECTION ANGLE, DEGREES

DA110 B61C11F12M51W124E40V19R15X29

SYMBOL	BETA	PARAMETRIC VALUES	DATA SOURCE	SPDARK	REFERENCE INFORMATION
○	6.000	MAOM	10.000	SPDARK	SFET 4.4119 SQ.FT. INOES
□	8.000	BLUDD	-12.000	.000	LRFT 19.2759 INOES
◇	10.000	ELEVEN	.000	85.000	SFET 37.9358 INOES
△	12.000				XPP 43.5874 INOES
△	14.000				YPP .0000 INOES
					ZPP 15.1875 SCALE INOES
					SCALE .0405

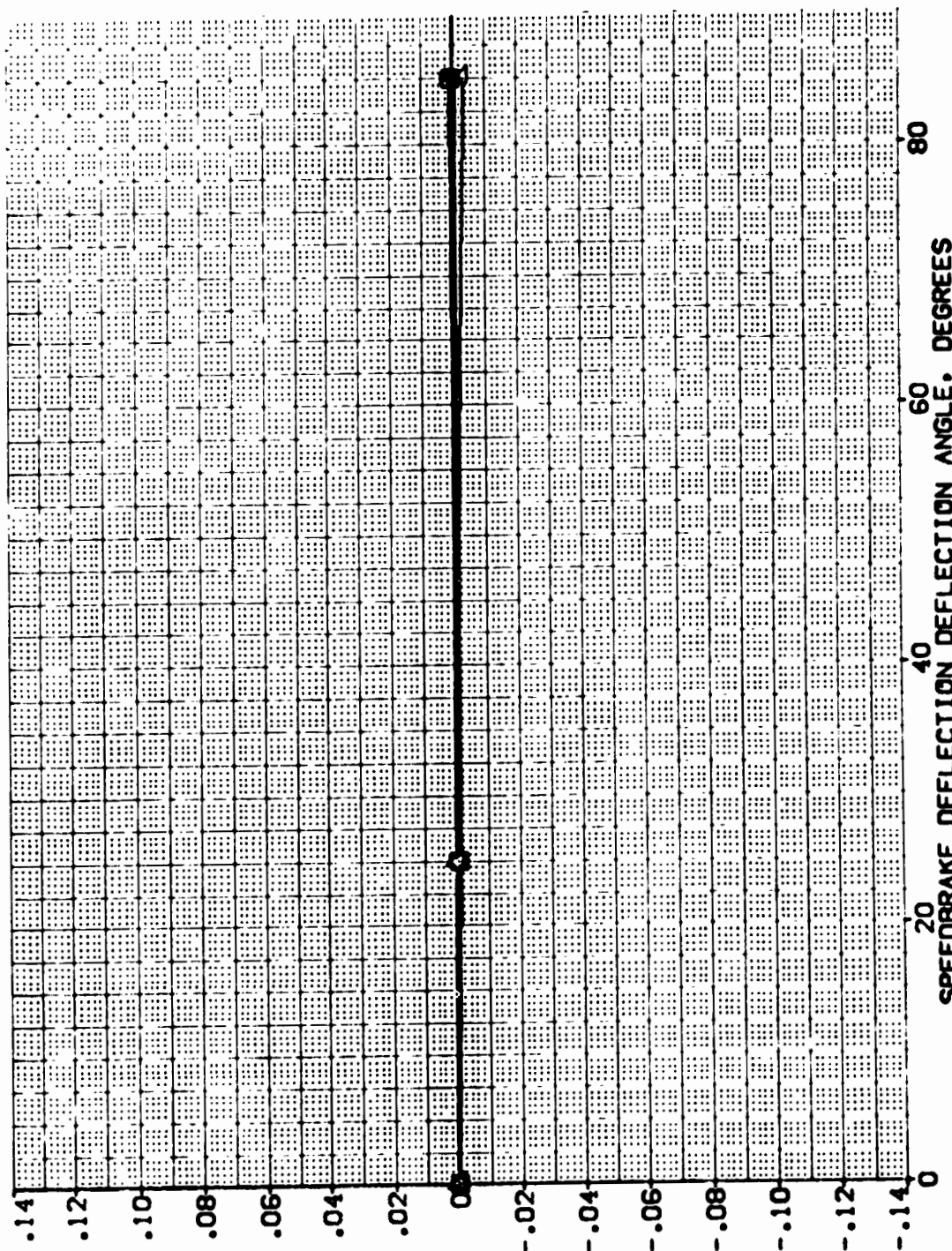


FIG 16
BRAKE EFFECTIVENESS, RUDDER = 0 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {AF5023} 0 0110 BSIC1F12-51V12AE40V18P15X28
 {AF5026} 0 0110 BSIC1F12-51V12AE40V18P15X28
 {AF5051} 0 0110 BSIC1F12-51V12AE40V18P15X28

ALPHA RUDDER SPEEDBRK AILRON REFERENCE INFORMATION
 10.000 -20.000 .000 4.4119 50. FT.
 10.000 -20.000 .000 19.2258 IN-OES
 10.000 -20.000 .000 37.9058 IN-OES
 43.5674 IN-OES
 15.1875 IN-OES
 .0405 SCALE

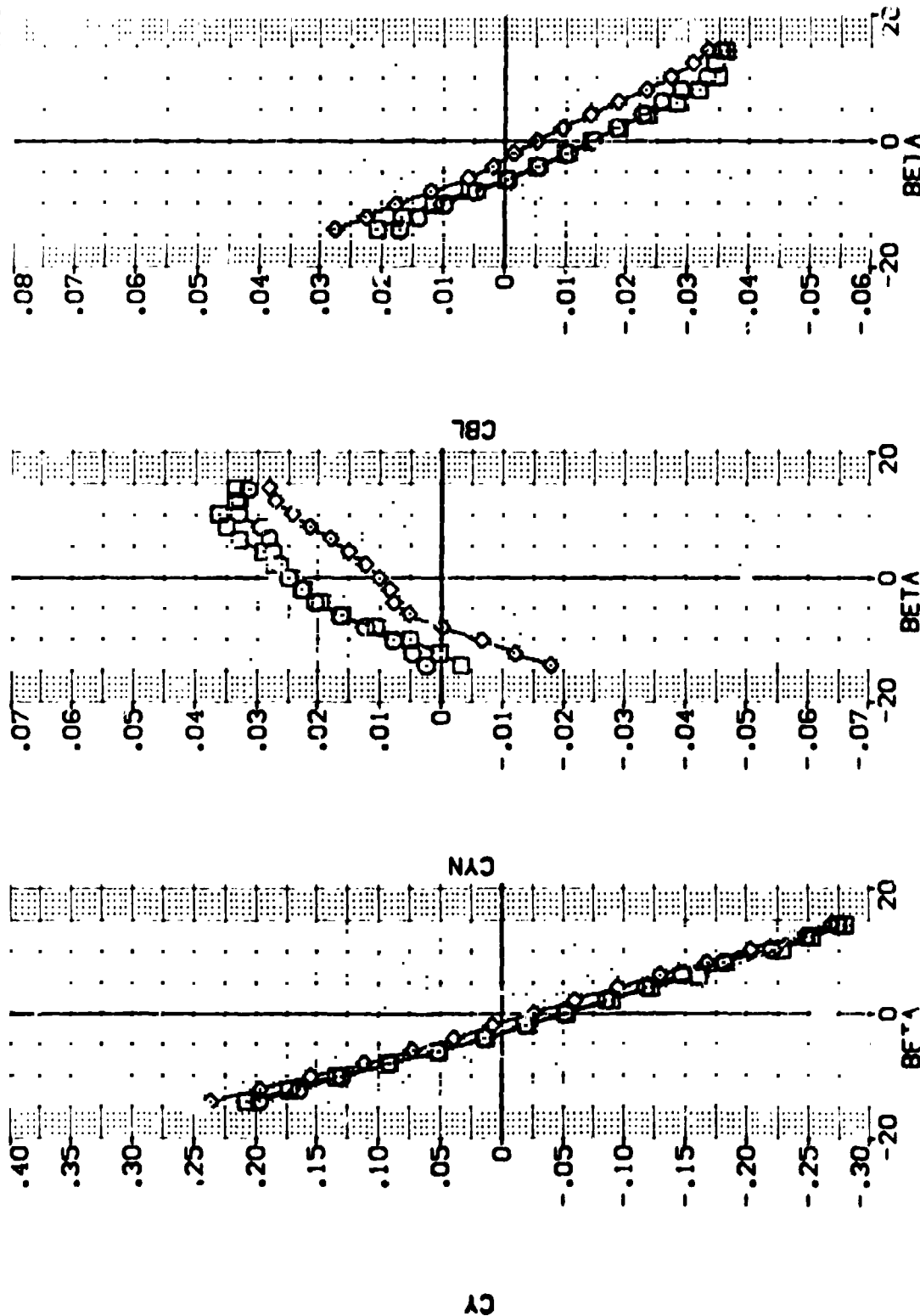


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., /' PHA = 10 DEG.

{A}MACH = .20

DATA SET SYMBOL. CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	ELEVON	SPEEDBRAK	SOFLAP	REFERENCE INFORMATION
{M3023}	0A110 861C11F12-51V124E40V18R15C3	.200	.000	.000	-12.000	SREF 4.4119 SQ.FT.
{M3026}	0A110 861C11F12-51V124E40V18R15C3	.200	.000	25.000	-12.000	LREF 19.2259 INO-ES
{M3031}	0A110 861C11F12-51V124E40V18R15C3	.200	.000	85.000	-12.000	BREF 37.9359 INO-ES
						XREF 43.5974 INO-ES
						YREF .0000 INO-ES
						ZREF 15.1873 INO-ES
						SCALE .0405

SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

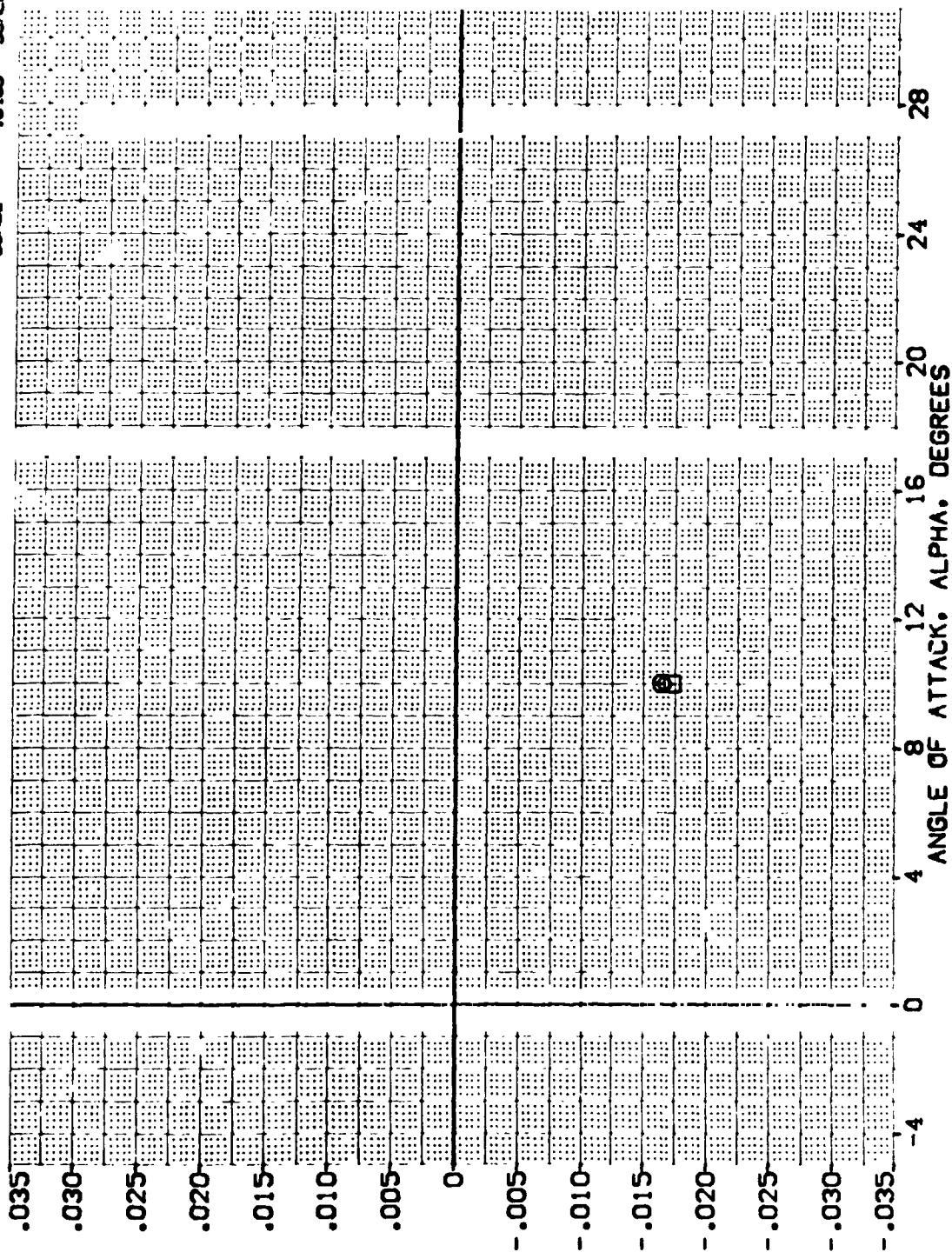


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL: MF5023, MF5026, MF5051

CONFIGURATION DESCRIPTION: 0A110 BSIC11F12S1V124E40V1SR15C28, 0A110 BSIC11F12S1V124E40V1SR15C29, 0A110 BSIC11F12S1V124E40V1SR15C23

REFERENCE INFORMATION: SREF 4.4119 SQ.FT., LREF 19.2299 INCHES, BREF 37.9359 INCHES, XPRP 43.5974 INCHES, YPRP .0000 INCHES, ZPRP 15.1875 INCHES, SCALE .0405

MACH: .200, .200, .200

ELEV: .000, .000, .000

SPOBRK: .000, 25.000, 65.000

BDLAP: -12.000, -12.000, -12.000

YAWING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CYNBET, PER DEGREE

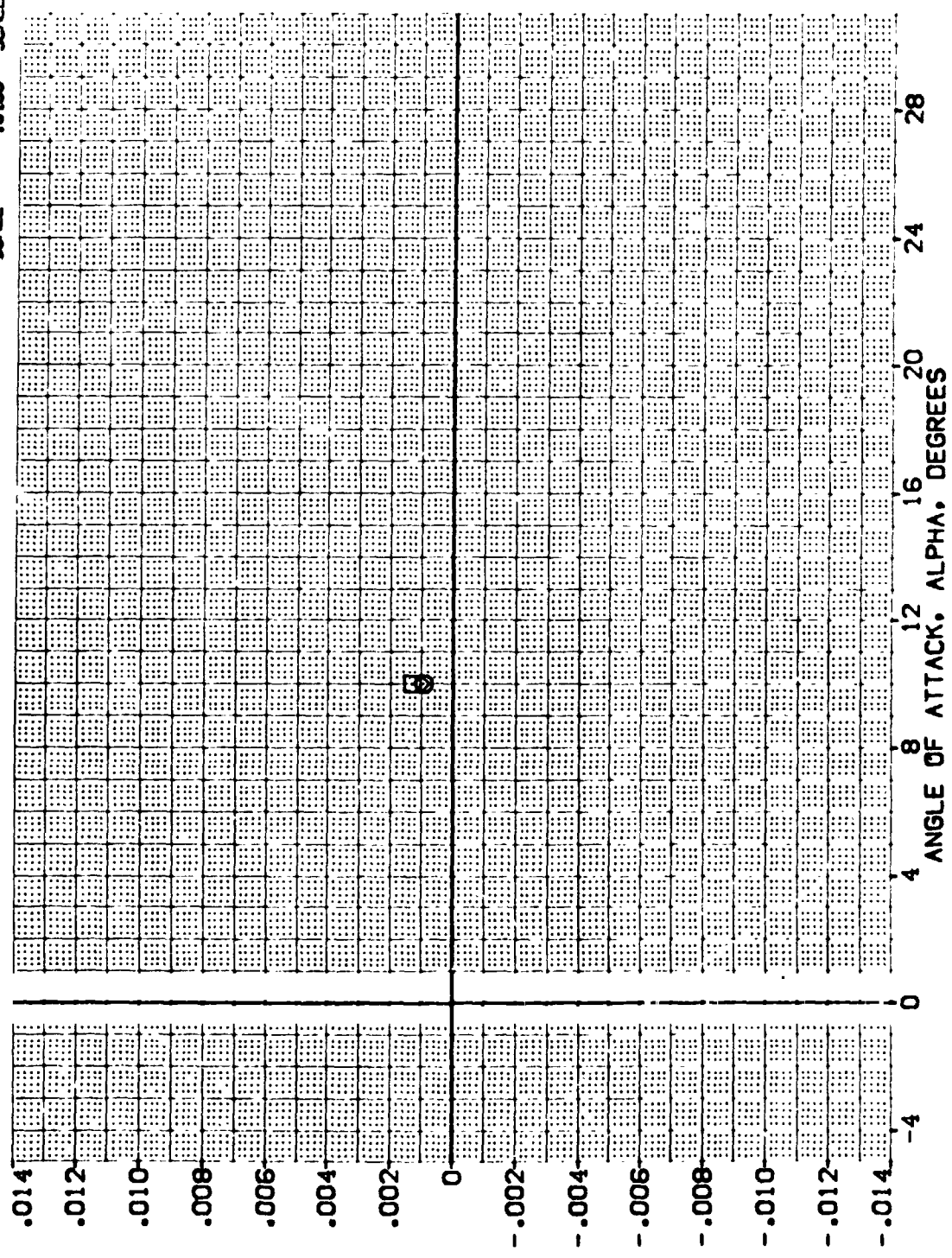


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEF., ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MAC	ELEV	SPEED	SLAP	REFERENCE INFORMATION
MF3023	0A110 051C11F12G1V124E40V1SR15C28	.200	.000	.000	-12.000	4.4119 SQ.FT.
MF3026	0A110 051C11F12G1V124E40V1SR15C28	.200	.000	25.000	-12.000	19.2238 INCHES
MF5051	0A110 051C11F12G1V124E40V1SR15C28	.200	.000	65.000	-12.000	37.9358 INCHES
						43.5874 INCHES
						.0000 INCHES
						15.1875 INCHES
						.0405 SCALE

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBL8ET, PER DEGREE

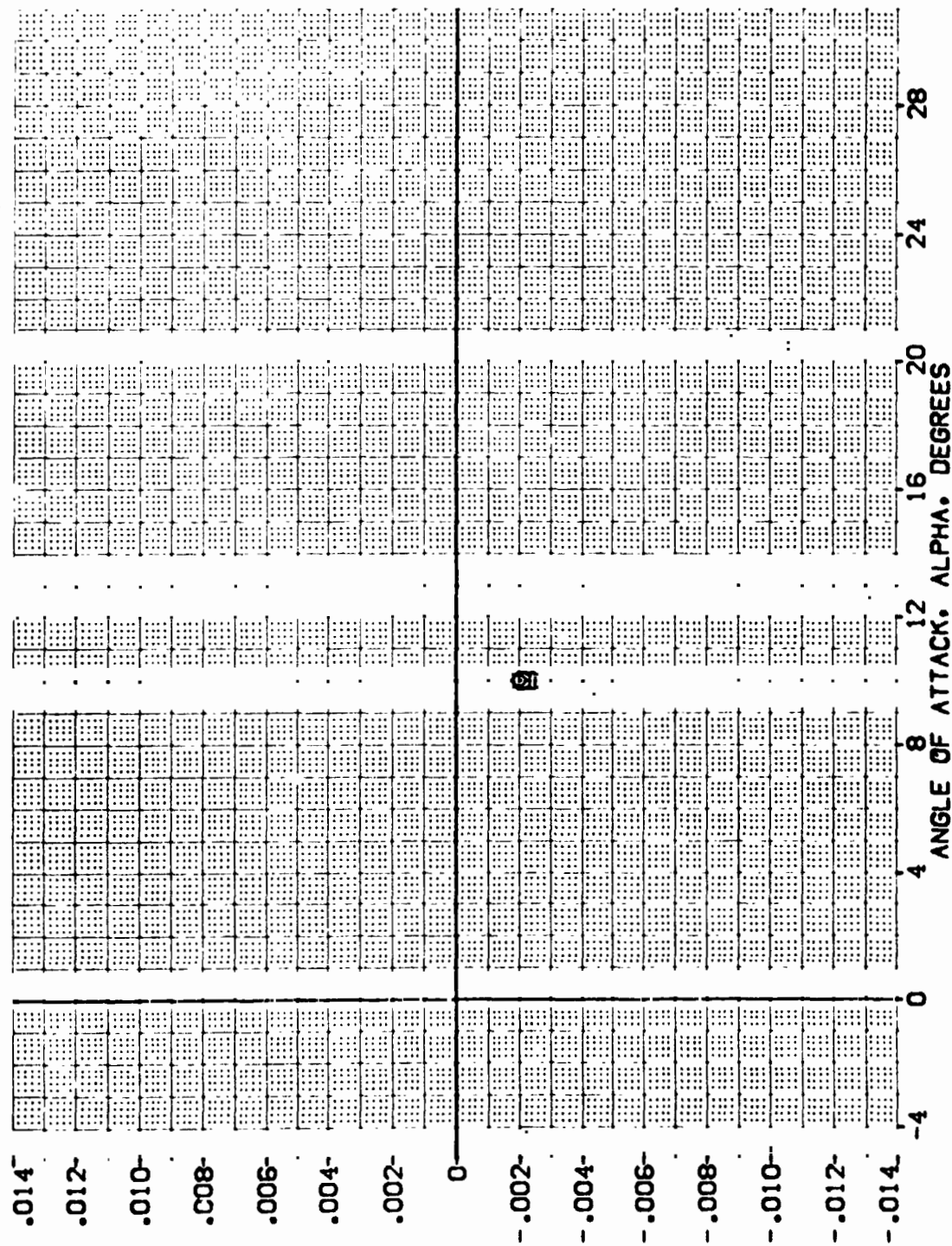


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (CF5023)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	DATA SET	SPDRK	SPDRK	REFERENCE INFORMATION
○	-14.000		.200 ALPHA	SPDRK	CF5026	25.000		4.4118 SQ.FT.
□	-12.000		-20.000 BOFLAP	10.000 DATASET				19.2258 IN.OES
◇	-10.000		.000 ATURON	-12.000 CF5023				37.9358 IN.OES
△	-8.000			.000 CF5051				43.5574 IN.OES
▽	-6.000							.0000 IN.OES
								15.1875 IN.OES
								.0405 SCALE

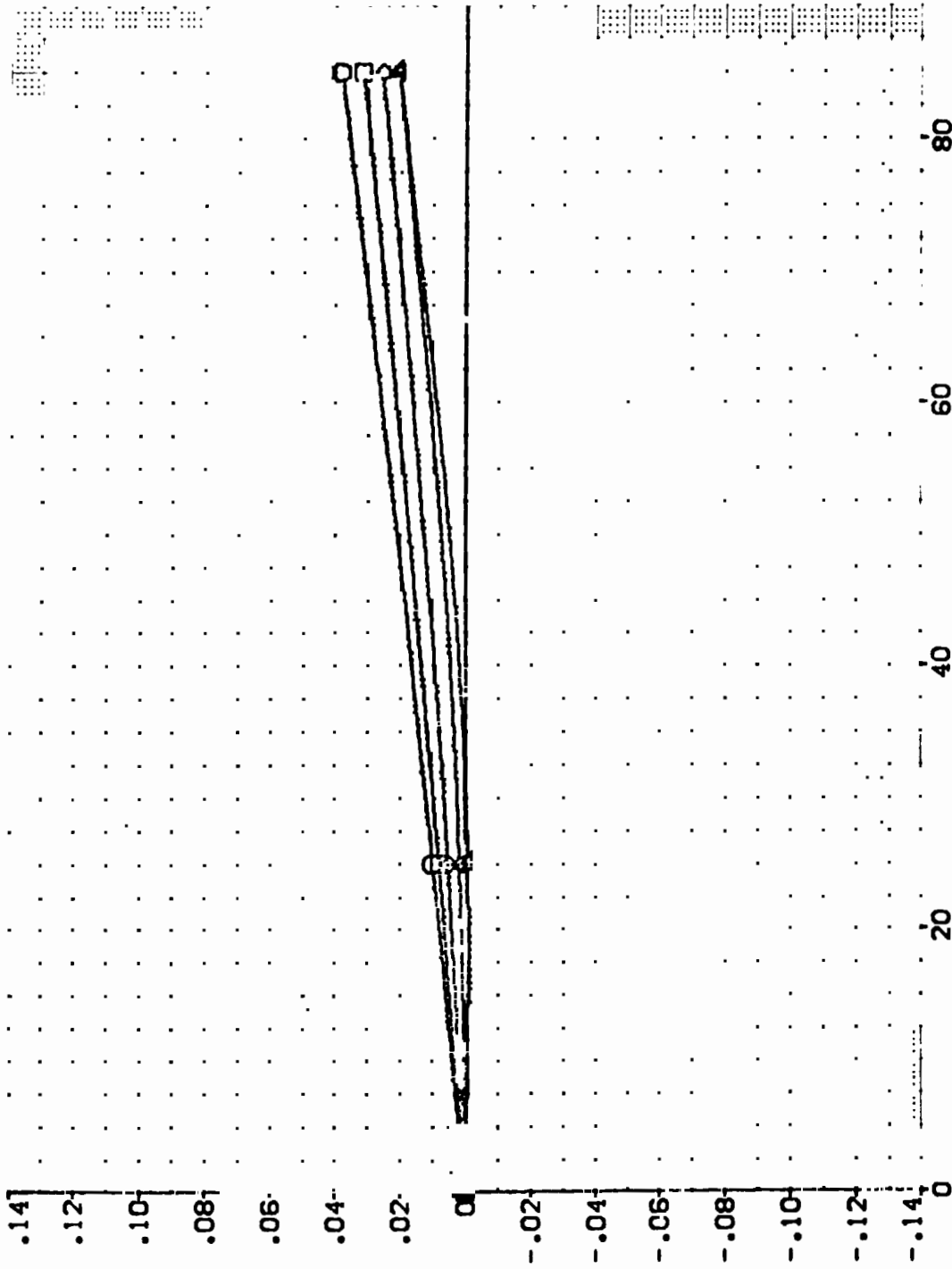


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (CF5023)

SYMBOL		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
BETA	MACH	.200	ALPHA	SPOBRK	SREF	90.FT.	
-4.000	RUDDER	-20.000	BEFLAP	25.000	LREF	19.2299	INCHES
-2.000	ELEVON	.000	AILRON	65.000	BREF	37.9359	INCHES
.000					XPRP	43.5874	INCHES
2.000					ZPRP	15.1875	INCHES
4.000					SCALE	.0405	SCALE

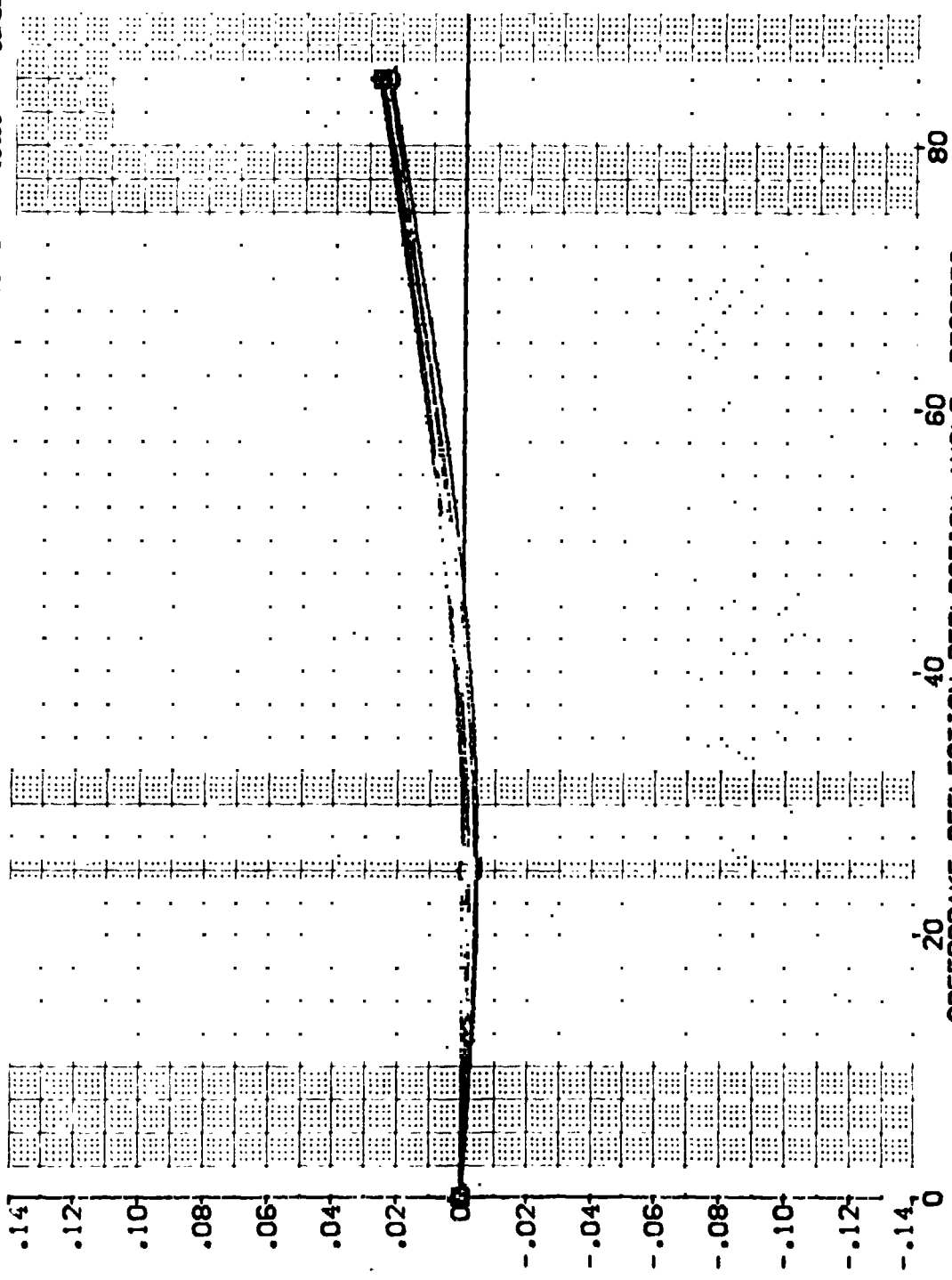


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29

(CF5023)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	6.000	RUDDER	.200 ALPHA	SPDRK	SREF
□	8.000	ELEVON	-20.000 BOFLAP	CF5023	LREF
◇	10.000		.000 AILRON	CF5023	BRF
△	12.000		.000	85.000	XPRP
▽	14.000				YPRP
					ZPRP
					SCALE
					4.4119
					19.7259
					37.9359
					43.5974
					.0000
					15.1875
					.0405
					SCALE

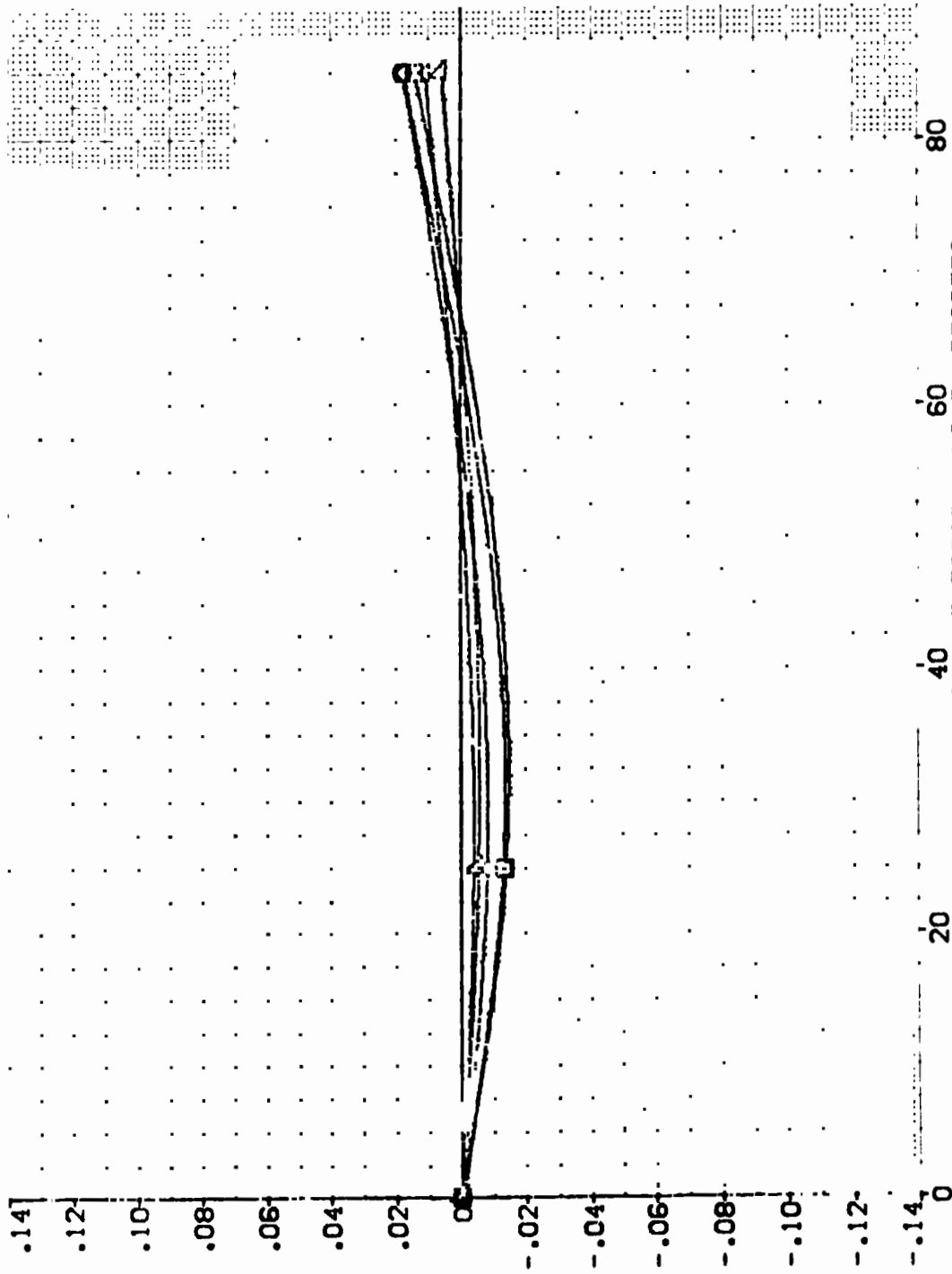


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

(CF5023)

0A110 861C11F12M51W124E40V19R15X29

SYMBOL		BETA		MACH		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
□	◇	-14.000	.200	RUDDER	ALPHA	10.000	DATASET	SPDRBK	SREF	50. FT.	INO-ES
◇	◇	-12.000	-20.000	ELEVON	BDFLAP	-12.000	CF5023	25.000	LREF	19.2259	INO-ES
◇	◇	-10.000	.000		ALLUON	.000	CF5051	65.000	BREF	37.9359	INO-ES
◇	◇	-8.000							XREF	43.5874	INO-ES
◇	◇	-6.000							YREF	.0000	INO-ES
									ZREF	15.1875	INO-ES
									SCALE	.0405	SCALE

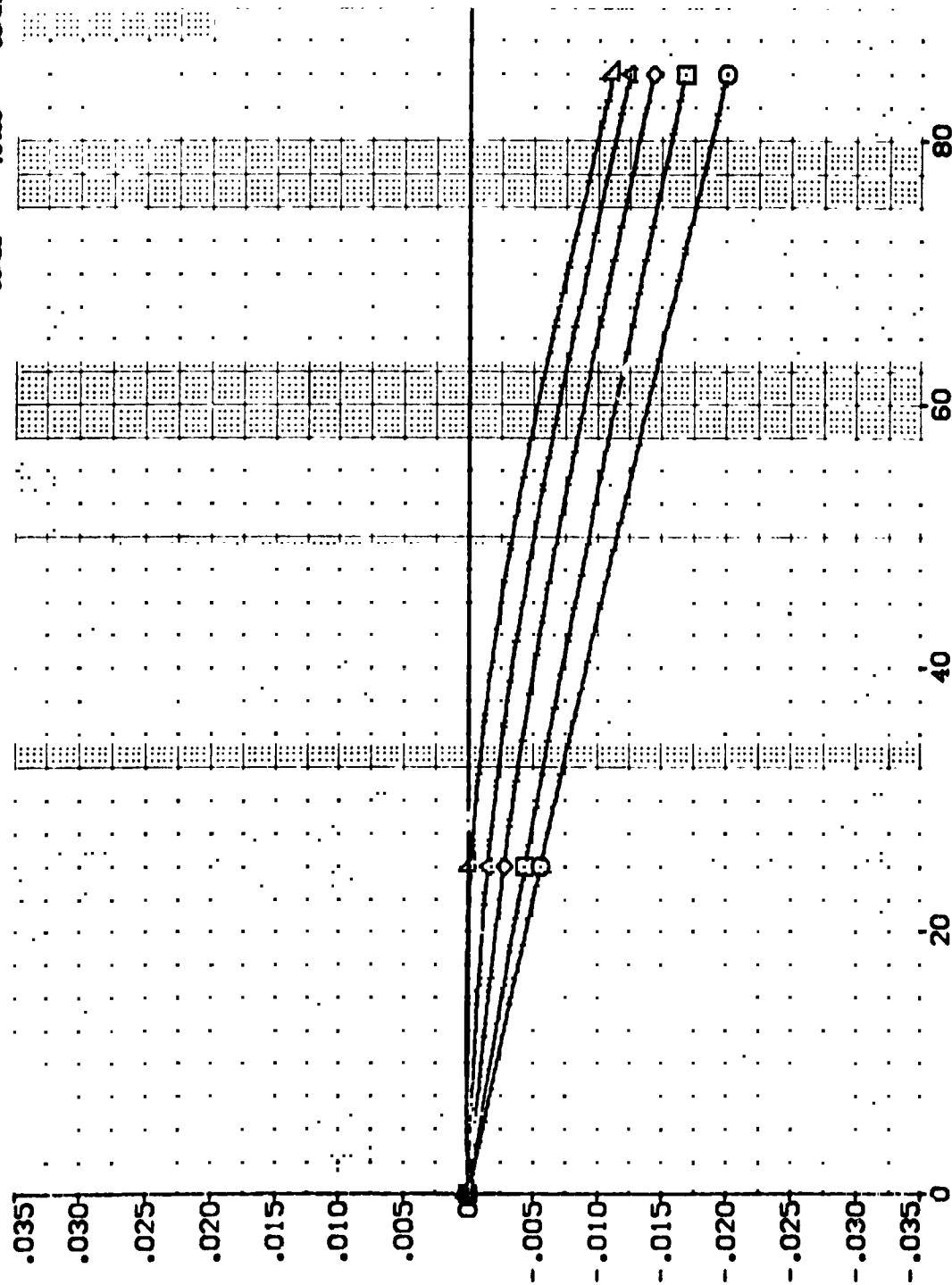


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

(CF5023)

CA110 861C11F12M51W124E40V19R15X29

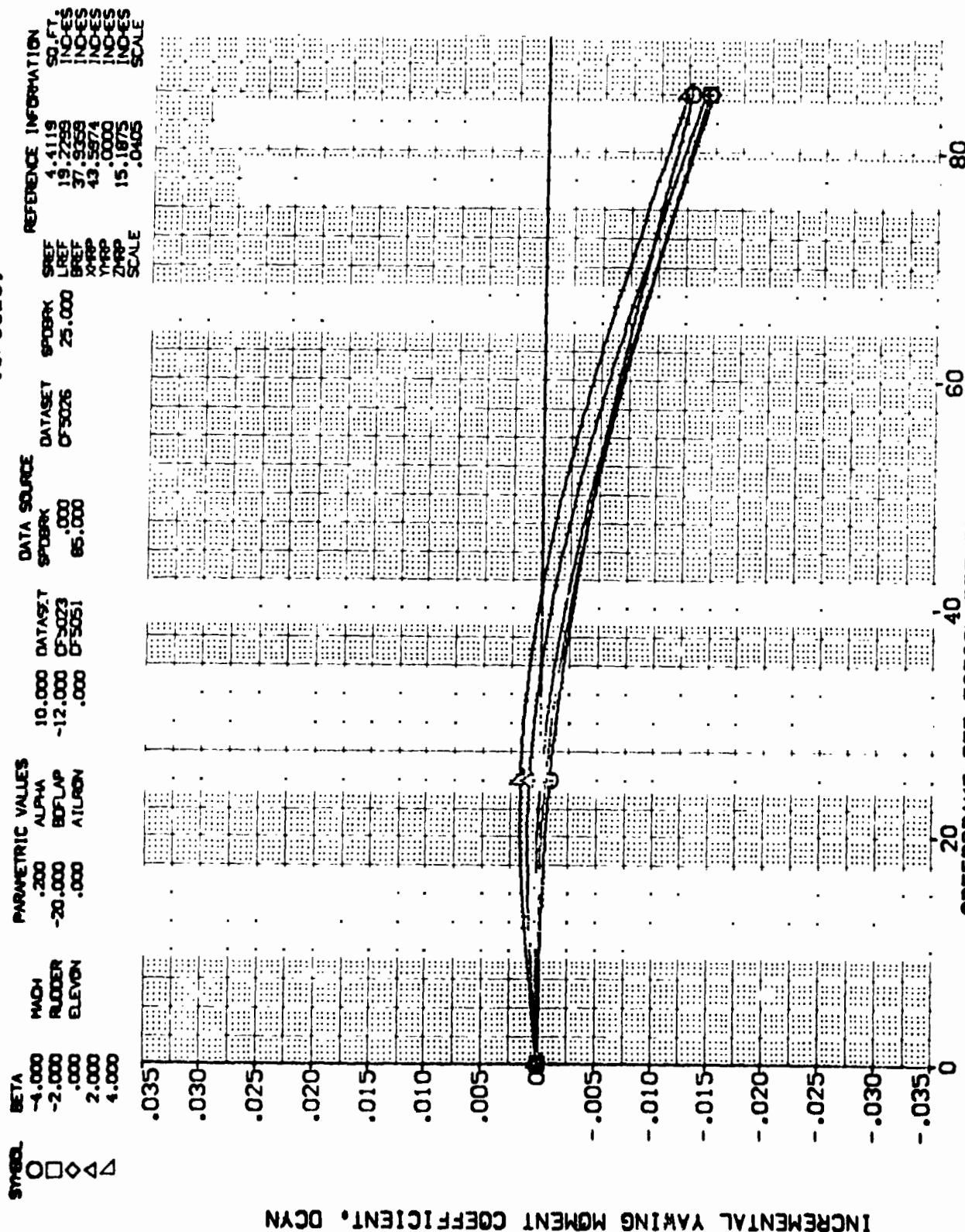


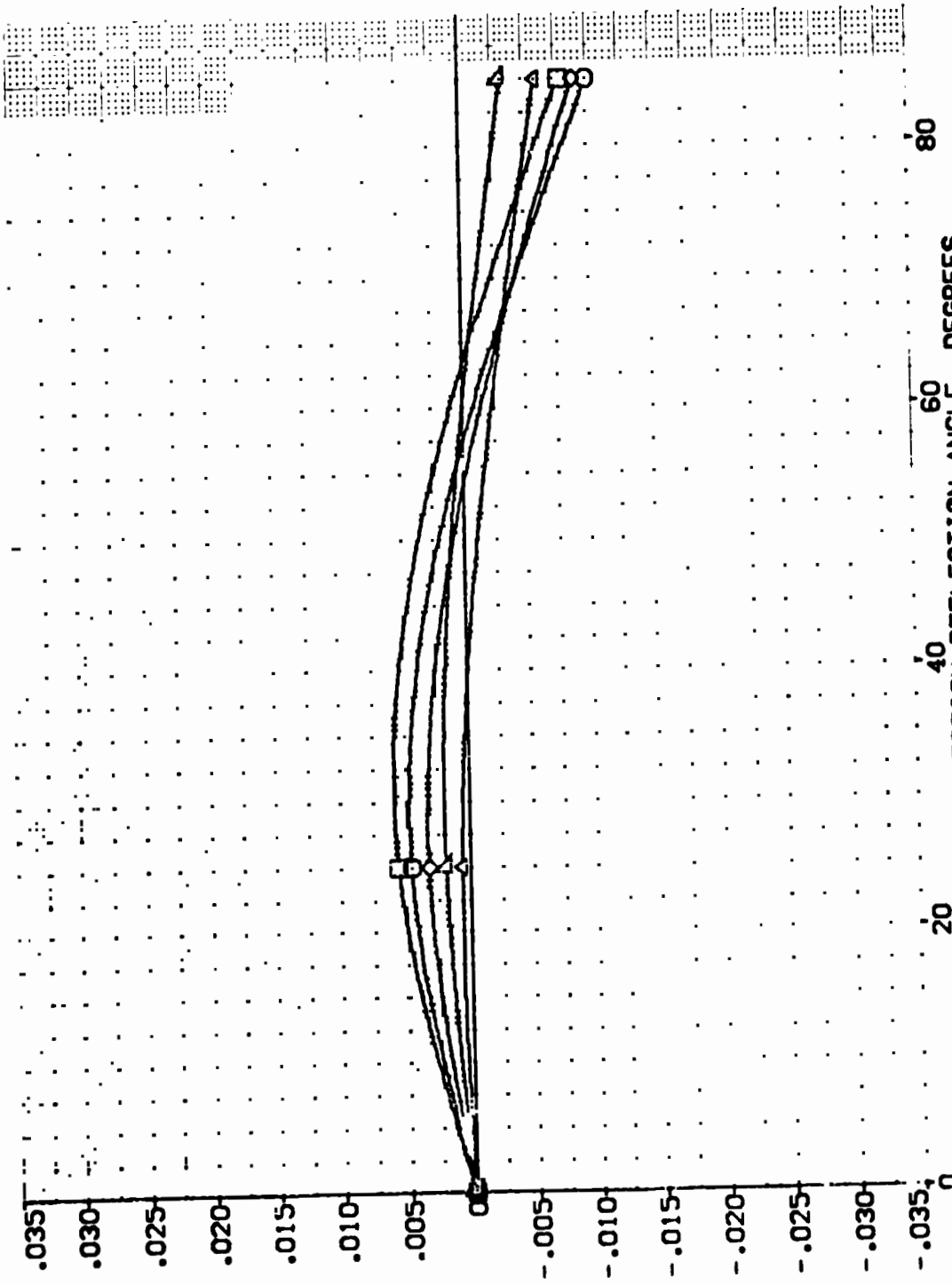
FIG 17 SPEEDBRAKE DEFLECTION ANGLE, DEGREES
SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

(CF5023)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA		MACH	ALPHA	BDFLAP	ATLRN	SPDRK	SPDRK	REF	SP.FT.	IN-ES	SCALE
8.000	□	0.000	20.000	0.000	0.000	0.000	25.000	REF	4.4119	IN-ES	
10.000	◇	0.000	20.000	0.000	0.000	0.000	25.000	REF	19.2259	IN-ES	
12.000	◇	0.000	20.000	0.000	0.000	0.000	25.000	REF	37.9359	IN-ES	
14.000	◇	0.000	20.000	0.000	0.000	0.000	25.000	REF	43.5974	IN-ES	
								REF	15.0000	IN-ES	
								REF	15.1675	IN-ES	
								REF	0.0405	SCALE	



SPEEDBRAKE DEFLECTION ANGLE, DEGREES

SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

FIG 17

(CF5023)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
BETA		MACH		SPDRBK		SREF	50.FT.
-14.000		.200	ALPHA	10.000	DATASET	4.4119	INCHES
-12.000		-20.000	BDFLAP	-12.000	CF5023	19.2259	INCHES
-10.000		.000	AILRON	.000	CF5051	37.9359	INCHES
-8.000				65.000		43.5974	INCHES
-6.000						YPRP	INCHES
						ZPRP	INCHES
						SCALE	SCALE
							.0405

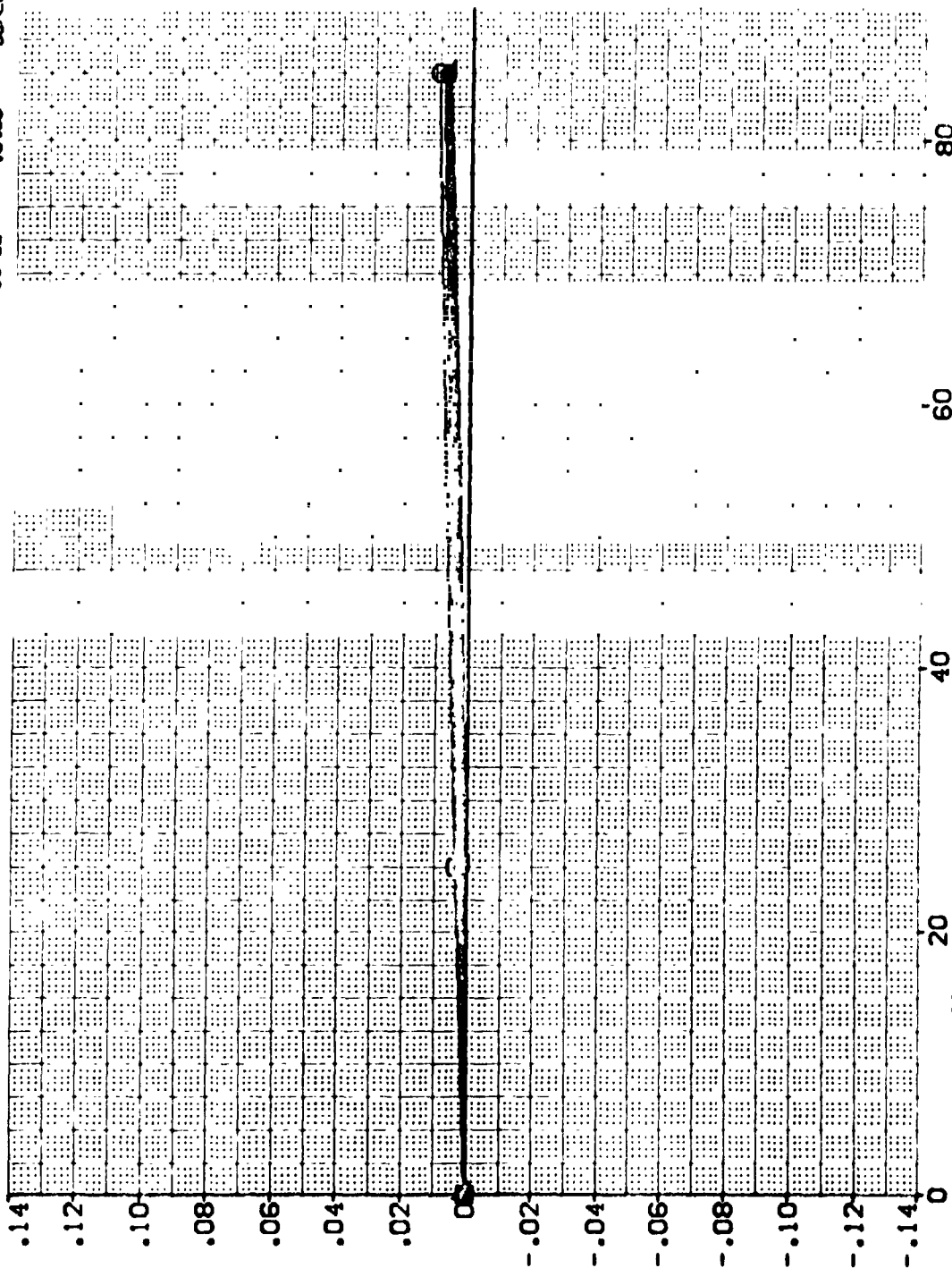
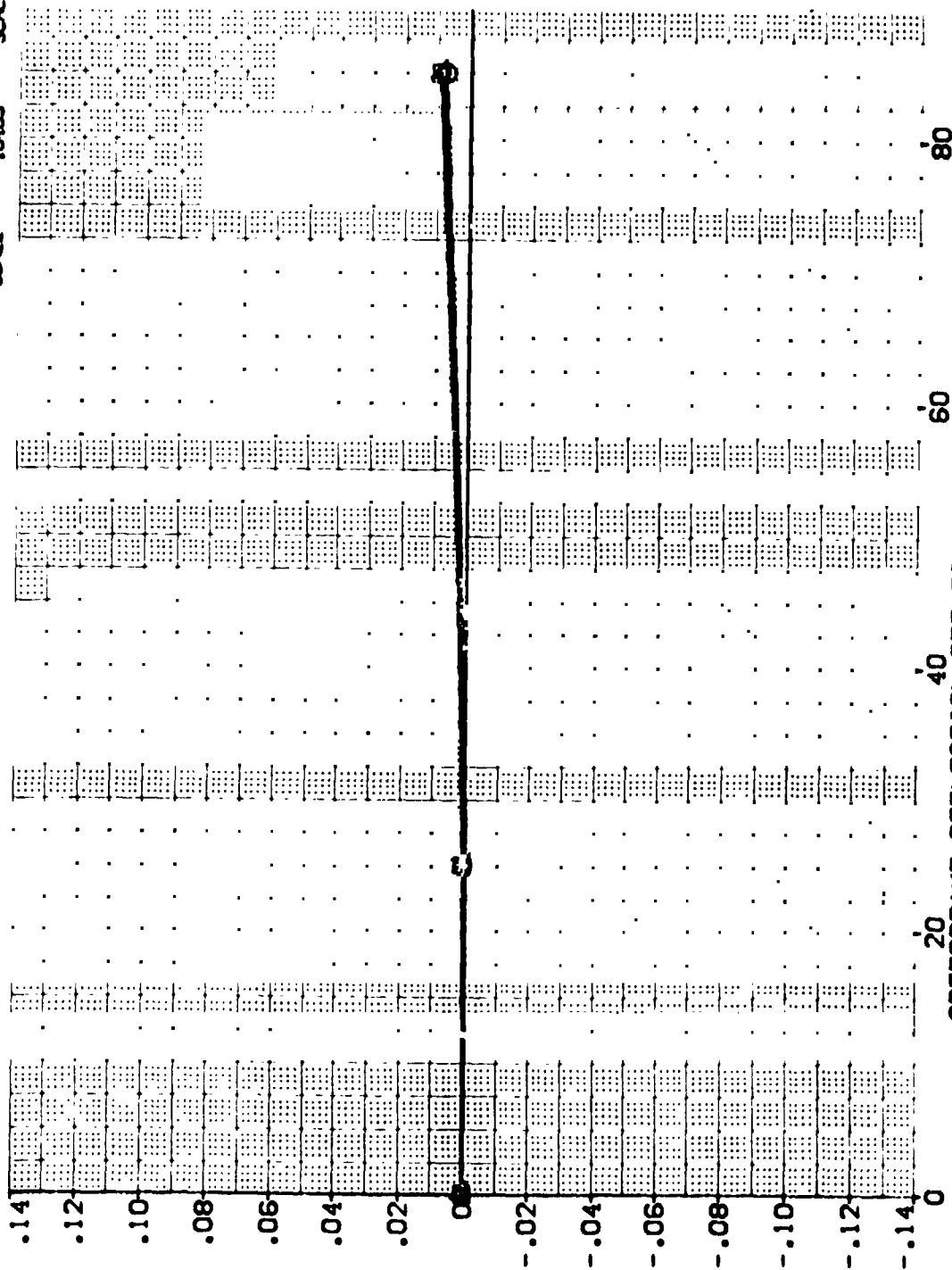


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (CF5023)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
□	◇	-1.000	MACH	.200	ALPHA	10.000	DATASET	SPDRBK	SREF
□	◇	-2.000	RUDDER	-20.000	BDFLAP	-12.000	CF5023	25.000	19.2798
◇	◇	.000	ELEVON	.000	AILRON	.000	CF5051	85.000	37.5658
◇	◇	2.000							43.9674
◇	◇	4.000							.0000
									15.1875
									.0405
									SCALE



SPEEDBRAKE DEFLECTION ANGLE, DEGREES

FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DGS.

0A110 B61C11F12M51W124E40V19R15X29 (CF5023)

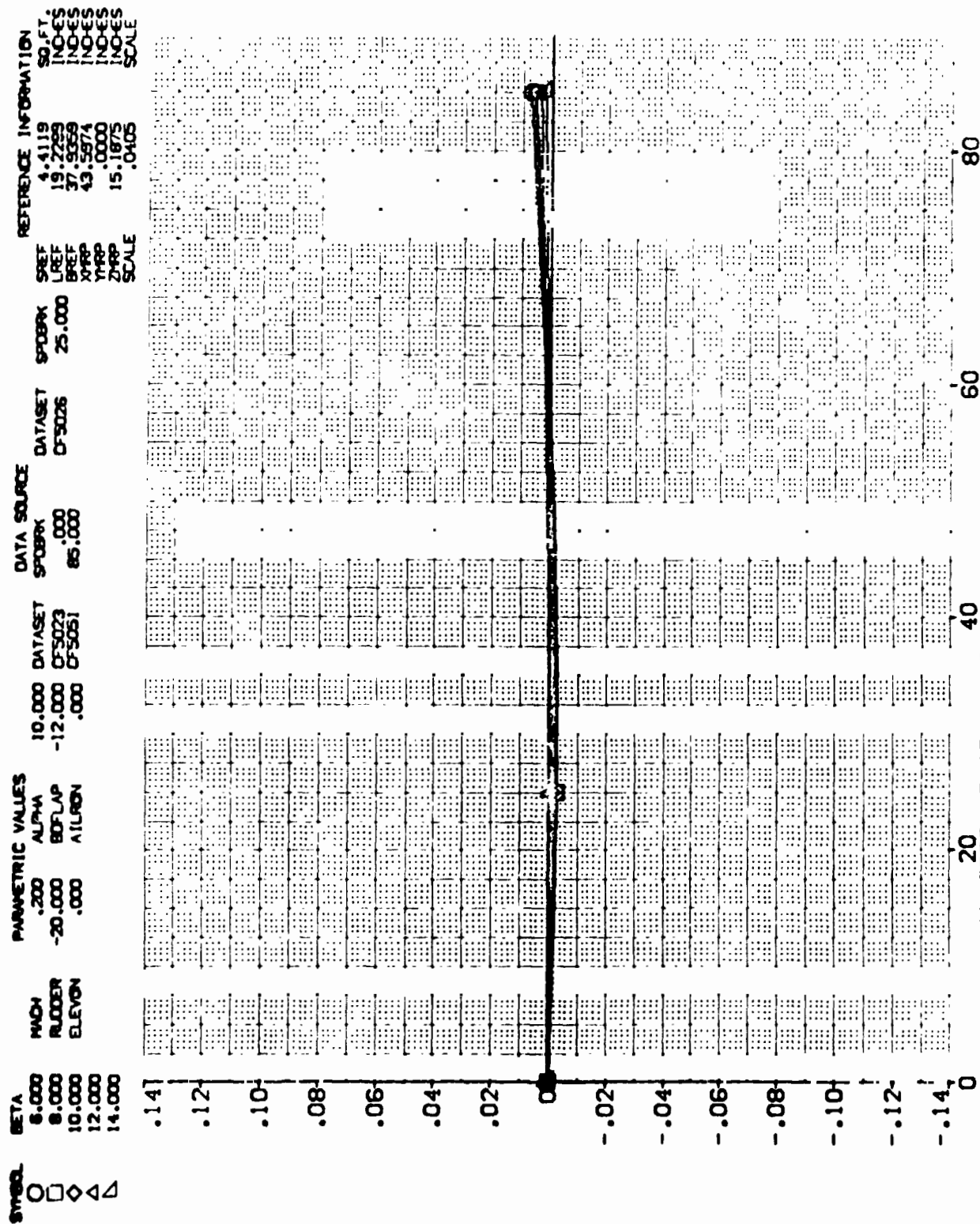


FIG 17 SPEEDBRAKE EFFECTIVENESS, RUDDER = -20 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL: **CONF** CONFIGURATION DESCRIPTION: **0A110 BASIC11F12G51V124E40V1SR15023**
(MF5044) **0A110 BASIC11F12G51V124E40V1SR15023**

MAC	ELEV	AILON	BETA	REFERENCE INFORMATION
.200	.000	.000		SREF 4.4119 SQ.FT.
.200	.000	.000		LREF 19.2259 IN-ES
				BREF 37.9359 IN-ES
				XREF 43.5974 IN-ES
				YREF .0000 IN-ES
				ZREF 15.1875 IN-ES
				SCALE .0405 SCALE

SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

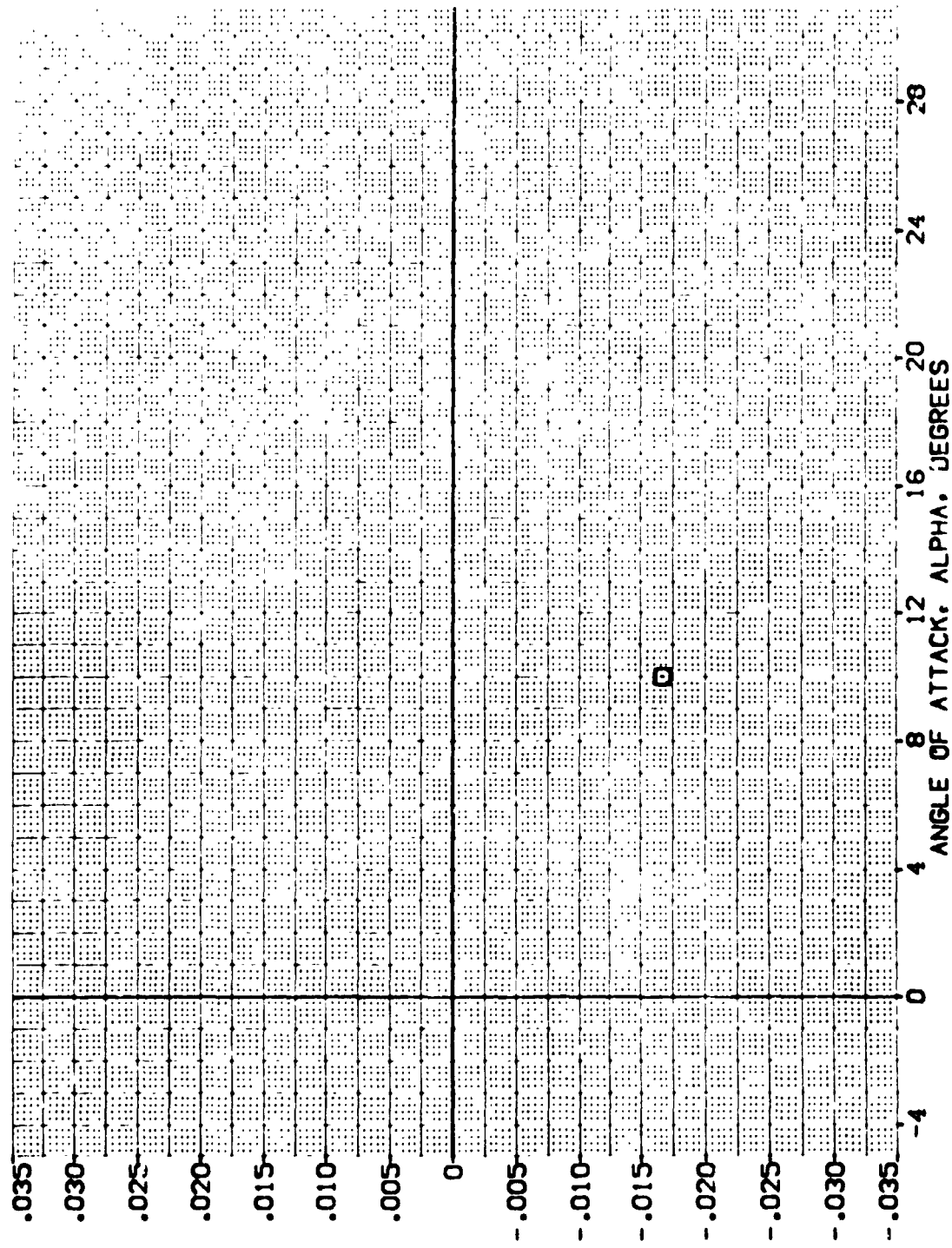


FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION REFERENCE INFORMATION

MF3031	0A110	BSIC11F126SIV124E40V19R15X29	SREF	4.4119	80.FT.
MF5044	0A110	BSIC11F126SIV124E40V19R15X29	UREF	19.2298	INO-ES
			BREF	37.9059	INO-ES
			XREF	43.5974	INO-ES
			YREF	.0000	INO-ES
			ZREF	15.1875	INO-ES
			SCALE	.0405	SCALE

YAWING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CYNBET, PER DEGREE

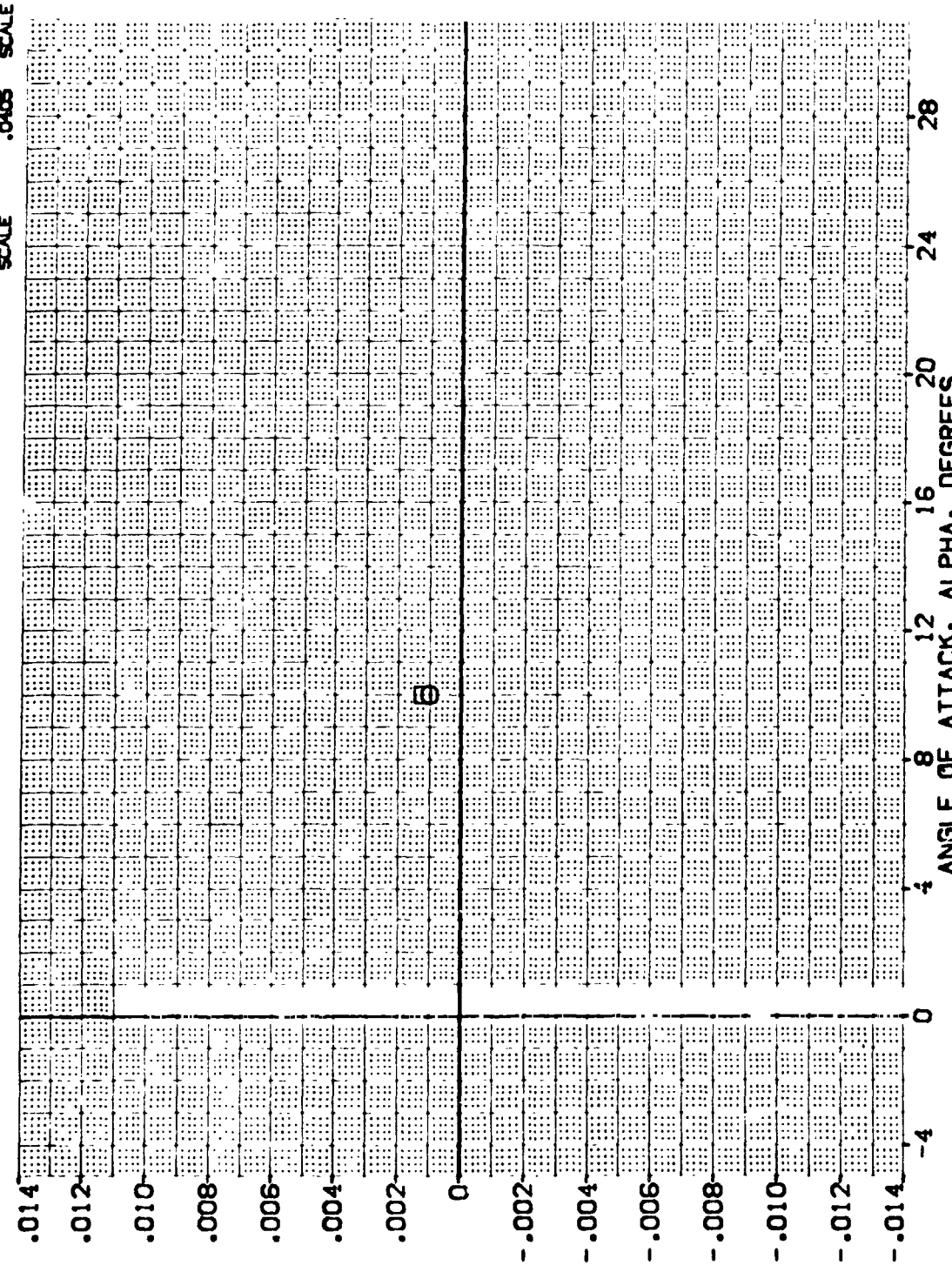


FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
{MF503}	□	0A110 BSIC1F1251V124E40V19R15X28
{MF504}	□	0A110 BSIC1F1251V124E40V19R15X28

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBLBET, PER DEGREE

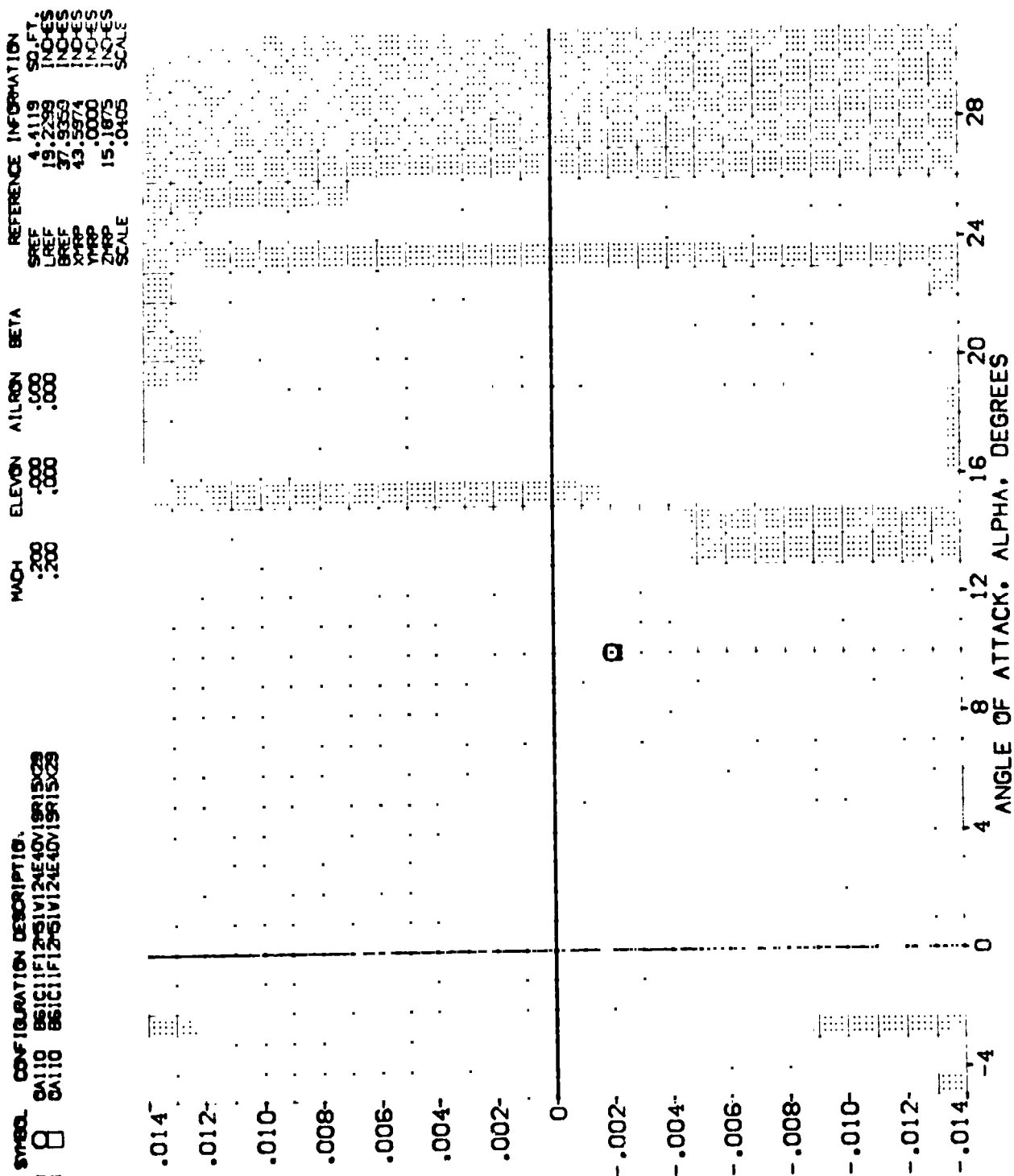
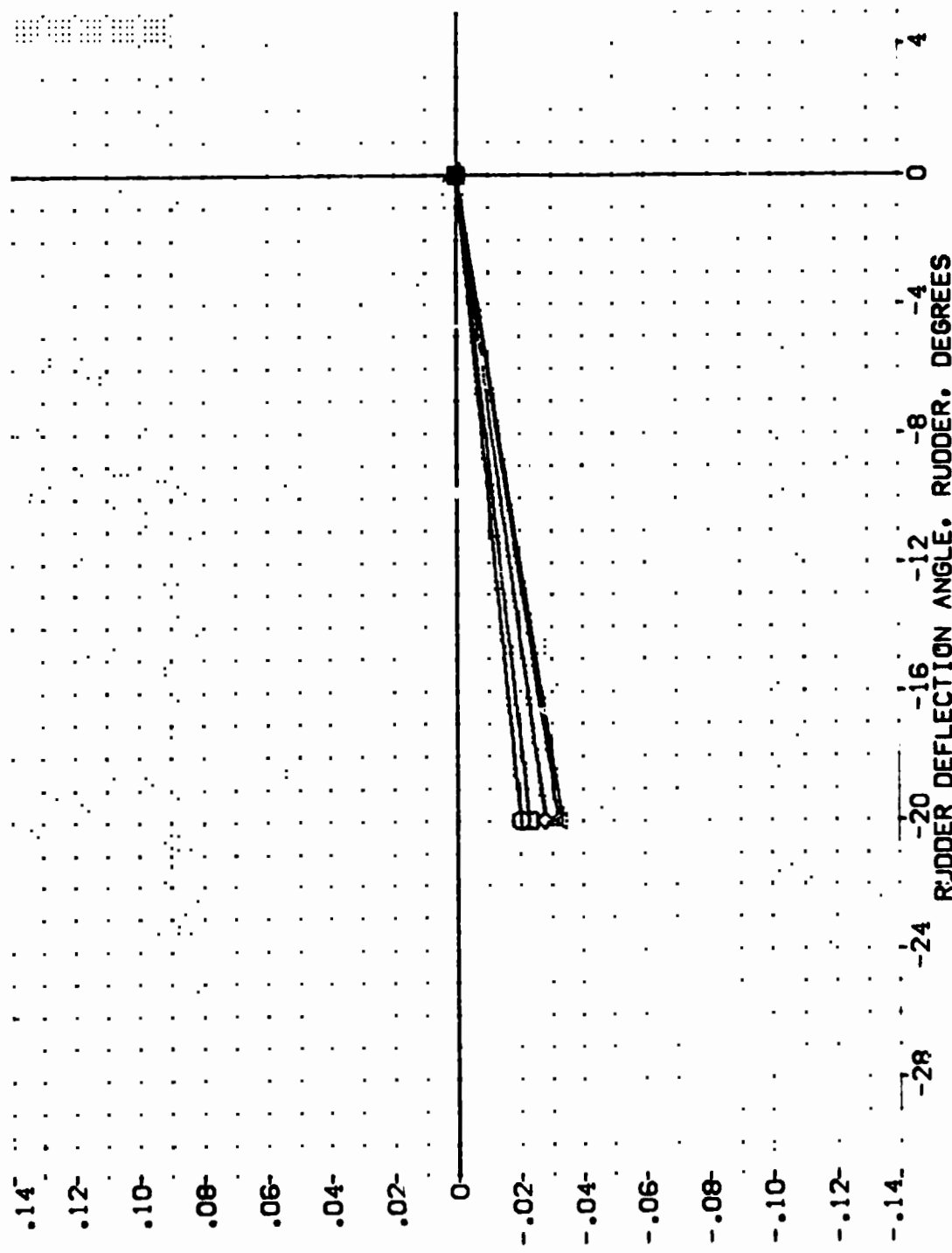


FIG 18 RUDDER EFFECTIVENESS. SPDBRK = 85 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (OF5051)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
BETA	MACH	ALPHA	RUDDER	REF	SO.FT.
-14.000	.200	10.000	0.000	19.2259	INO-ES
-12.000	.000	.000	DF5044	37.9359	INO-ES
-10.000	85.000	-12.000	DF5051	43.5974	INO-ES
-8.000				.0000	INO-ES
-6.000				15.1875	INO-ES
				SCALE	SCALE



INCREMENTAL SIDE FORCE COEFFICIENT, CY

FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

(DF5051)

0A110 B61C11F12M51W124E40V19R15X29

BY SOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	RUDDER	RUDDER	REFERENCE INFORMATION
○	-4.000	ELEVON	.200 ALPHA	10.000 DATASET	.000	SREF	4.4119 SQ.FT.
□	-2.000	SPDBRK	.000 AILRON	.000 DF5051	.000	LREF	19.2259 INO-ES
◇	.000		85.000 BOFLAP	-12.000		BREF	37.9359 INO-ES
△	2.000					XREF	43.5974 INO-ES
▽	4.000					YREF	.0000 INO-ES
						Z REF	15.1875 INO-ES
						SCALE	.0405

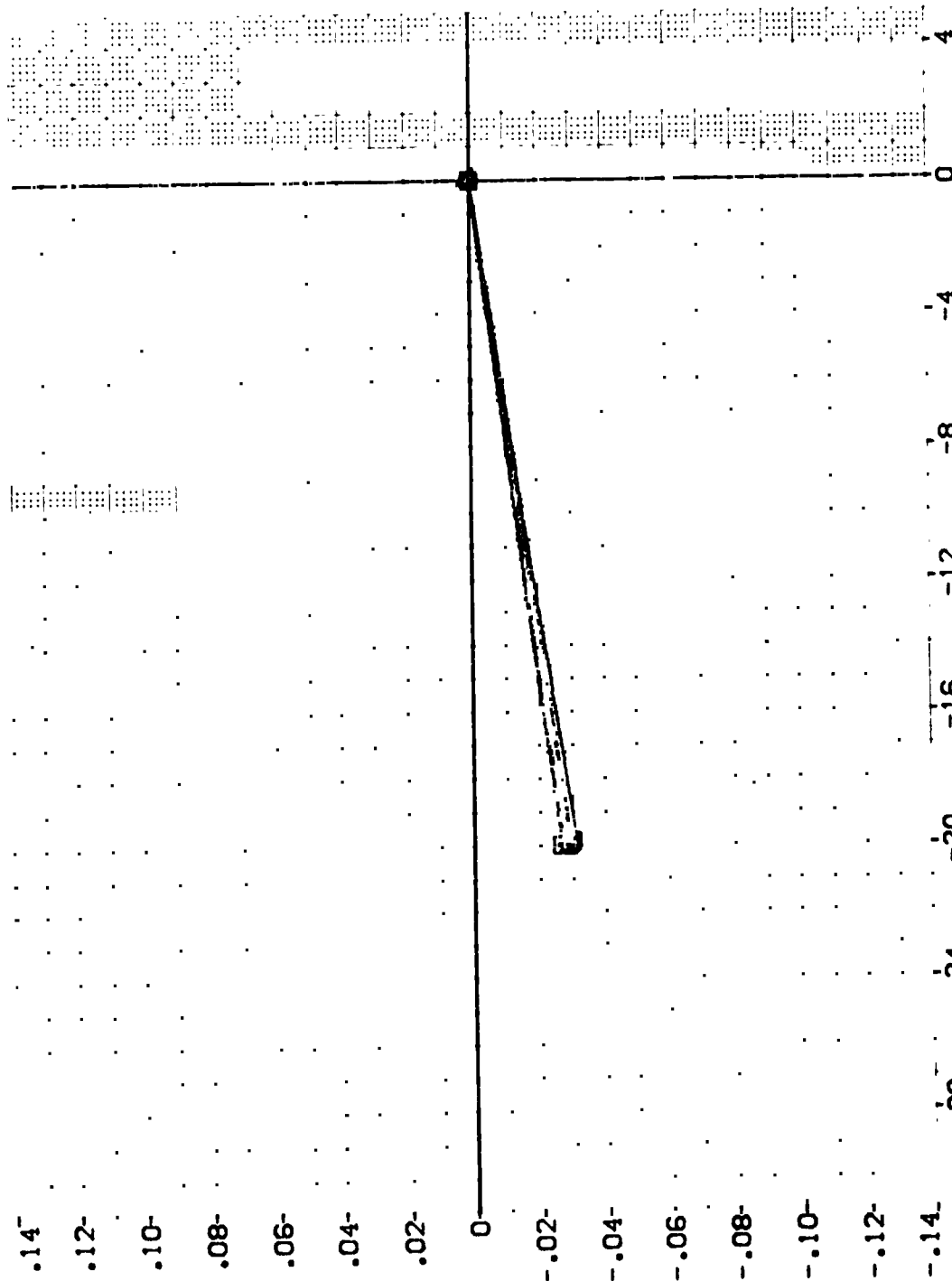


FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

(DF5051)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL		BETA		MACH		PARAMETRIC VALUES		DATA SOURCE		DATASET		RUDDER		REFERENCE INFORMATION	
□	6.000	8.000	10.000	12.000	14.000	.200	ALPHA	10.000	DATASET	DF5044	.000	SREF	4.4119	SD.FT	INDEXES
◇	8.000	10.000	12.000	14.000		.000	ALPHON	.000	DF5051			REF	19.2299	INDEXES	
△	10.000	12.000	14.000			85.000	BOFLAP	-12.000				REF	37.5359	INDEXES	
▽	12.000											REF	43.5974	INDEXES	
▽	14.000											REF	.0000	INDEXES	
												REF	15.1875	INDEXES	
												REF	.0405	INDEXES	

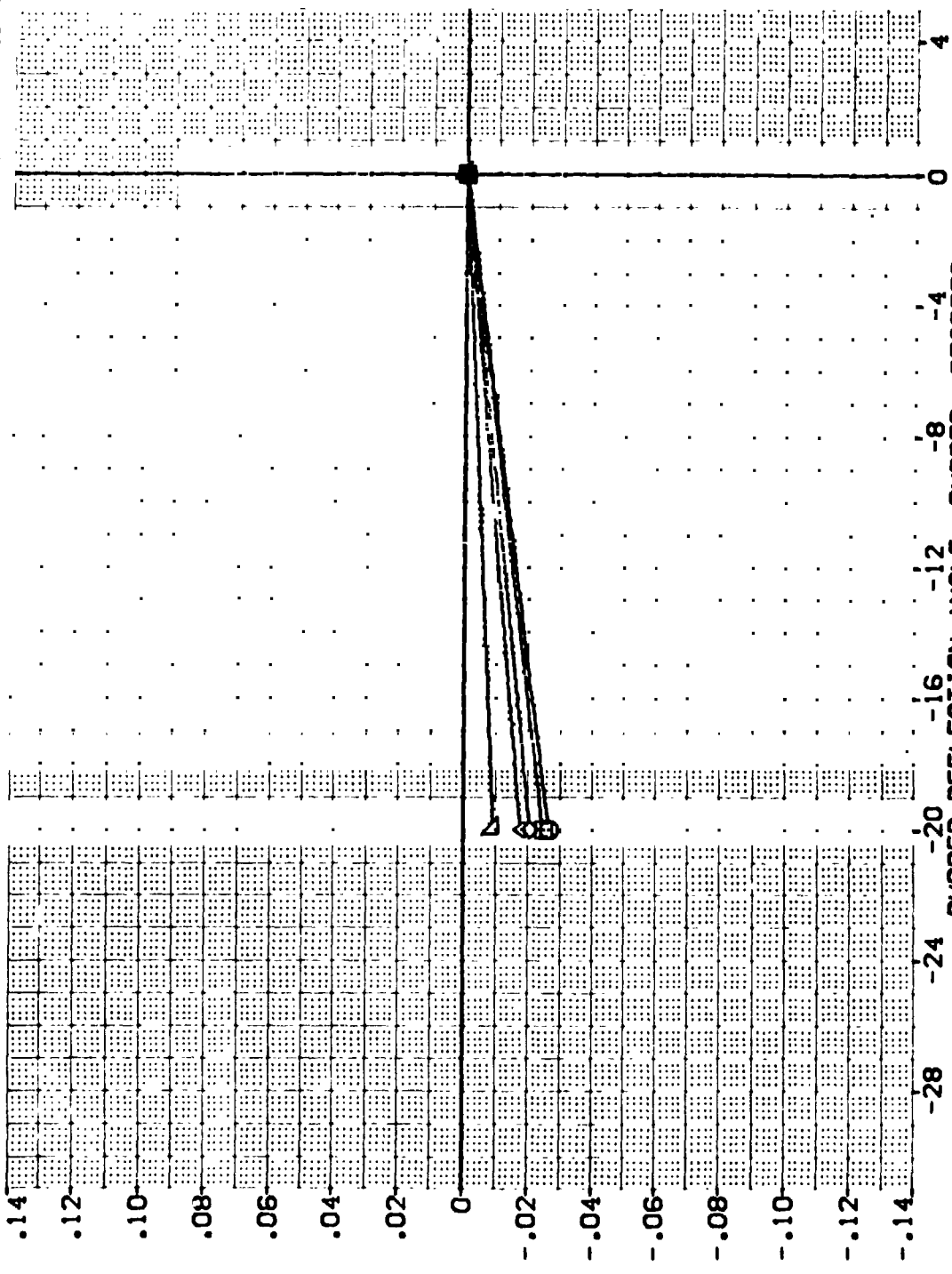


FIG 18 RUDDER EFFECTIVENESS, SPOBRK = 85 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (OF5051)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	RUDDER	DATASET	RUDDER	\$ F	REFERENCE INFORMATION
○	-14.000		.200 ALPHA	10.000 DATASET	-20.000	DF5044	.000	LREF	4.4119 SQ.FT.
□	-12.000		.000 ATLRN	.000 DF5051				BREF	19.7299 INCHES
◇	-10.000		85.000 BOFLAP	-12.000				XREF	37.9359 INCHES
△	-8.000							YREF	43.5974 INCHES
▽	-6.000							ZREF	15.1875 INCHES
								SCALE	.0405

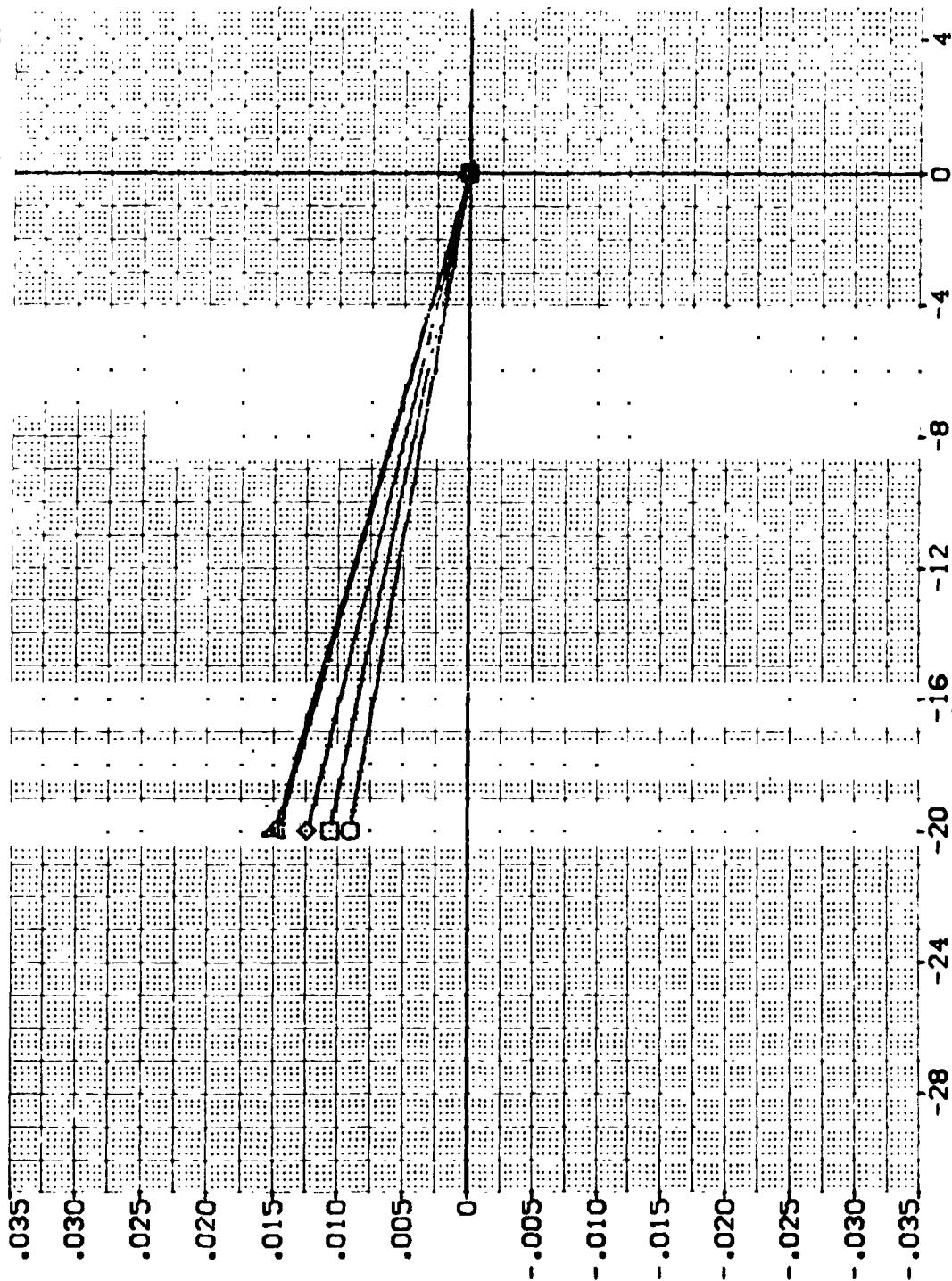


FIG 18 RUDDER EFFECTIVENESS. SPDBRK = 85 DEG., ALPHA = 10 DEG.

(DF5051)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA	MACH	ALPHA	ALURON	BOFLAP	RUDDER	DATASET	RUDDER	REF	SO.FT.	IN-OES	IN-OES
-4.000		.200	.000			10.000		19.2259			
-2.000	ELEVON					.000	.000	37.9359			
.000	SPOBRK	85.000	BOFLAP			DF5044		43.5974			
2.000								15.1875			
4.000								SCALE			

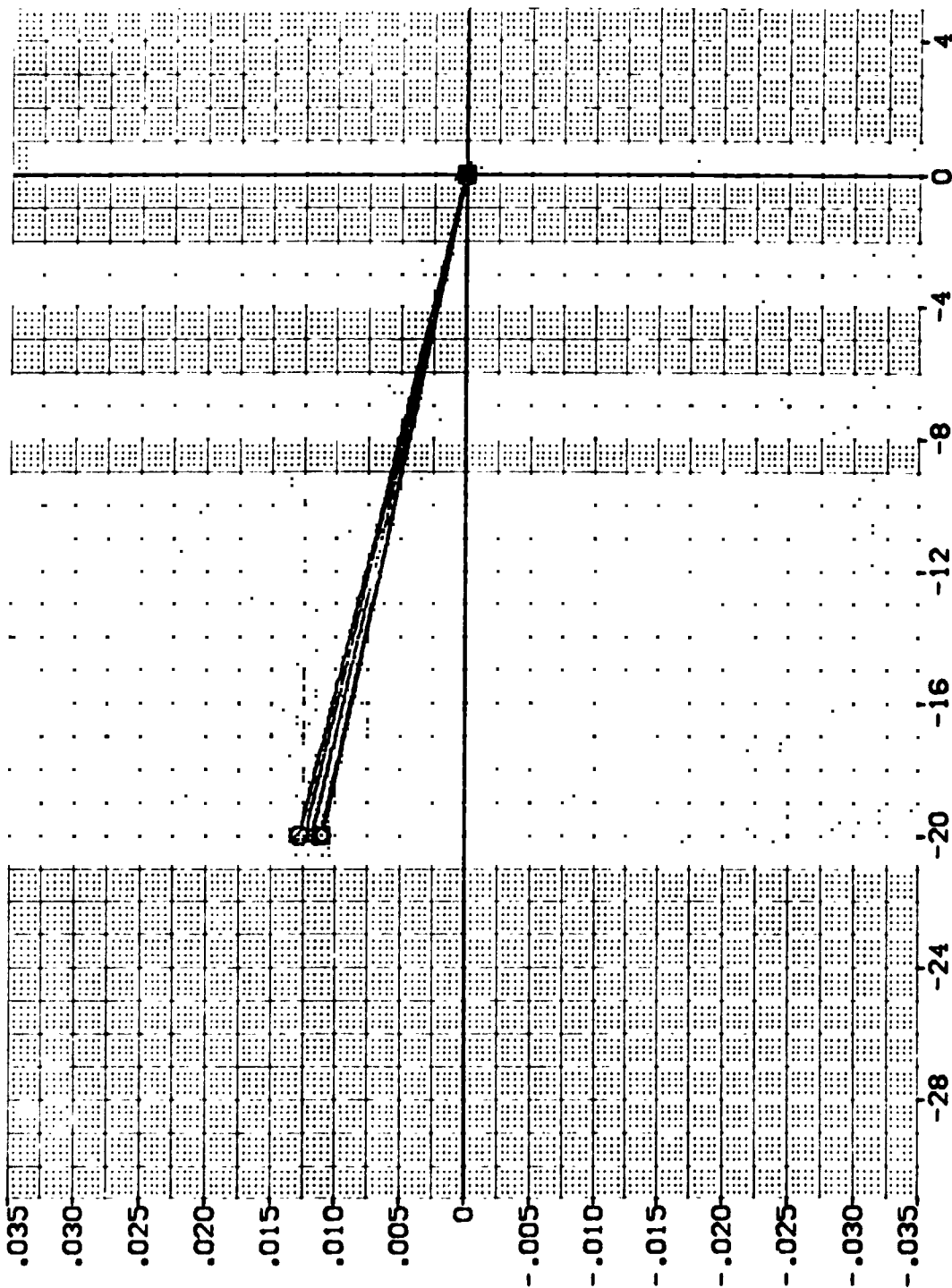


FIG 18 RUDDER EFFECTIVENESS, SPOBRK = 85 DEG., ALPHA = 10 DEG.

GA110 B61C11F12M51W124C4Cv19R15X29

SREF	4.4119	50.FT.
LREF	19.2299	INOES
BREF	37.9359	INOES
XPBP	43.5874	INOES
YVBP	.0000	INOES
ZBPB	15.1875	INOES
SCALE	.0405	SCALE

DATA SOURCE
BUDDER
-20,000

PARAMETRIC VALUES	
.200	ALPHA
.000	ATLRON
65.000	BOFLAP

BETA	MACH
6,000	ELEVEN
8,000	SPOBCK
10,000	
12,000	
14,000	

smc ○ □ ◇ △ ▲

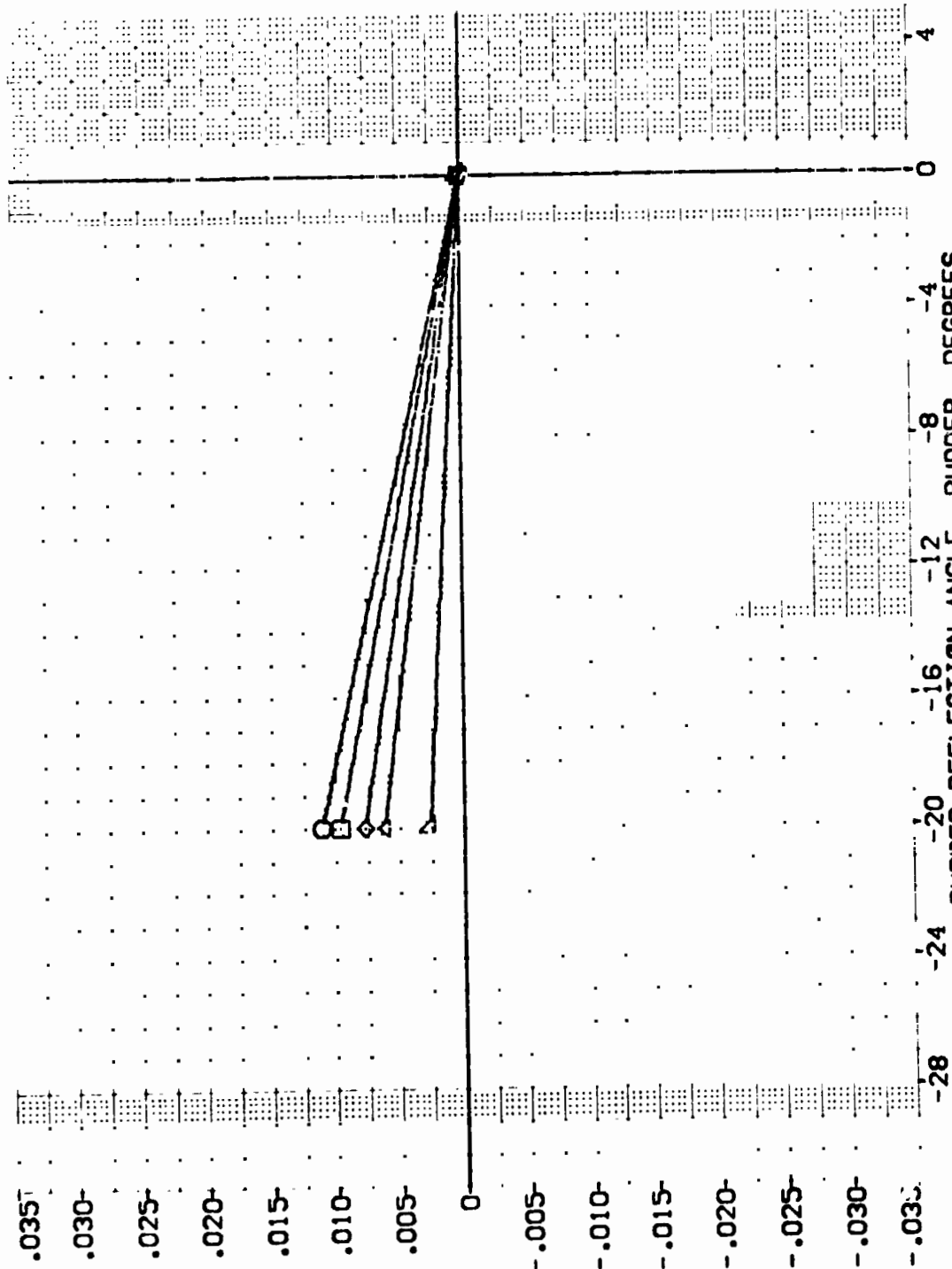


FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R15X29 (OF5051)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	RUDDER	RUDDER	REFERENCE INFORMATION
○	-14.000		.200 ALPHA	10.000 DATASET	RUDDER	REF	50. FT.
□	-12.000	ELEVON	.000 AILRON	.000 DF5051	.000	LREF	INO-ES
◇	-10.000	SPOBRK	85.000 BDLAP	-12.000		BREF	INO-ES
△	-8.000					XREF	INO-ES
▽	-6.000					YREF	INO-ES
						ZREF	INO-ES
						SCALE	SCALE

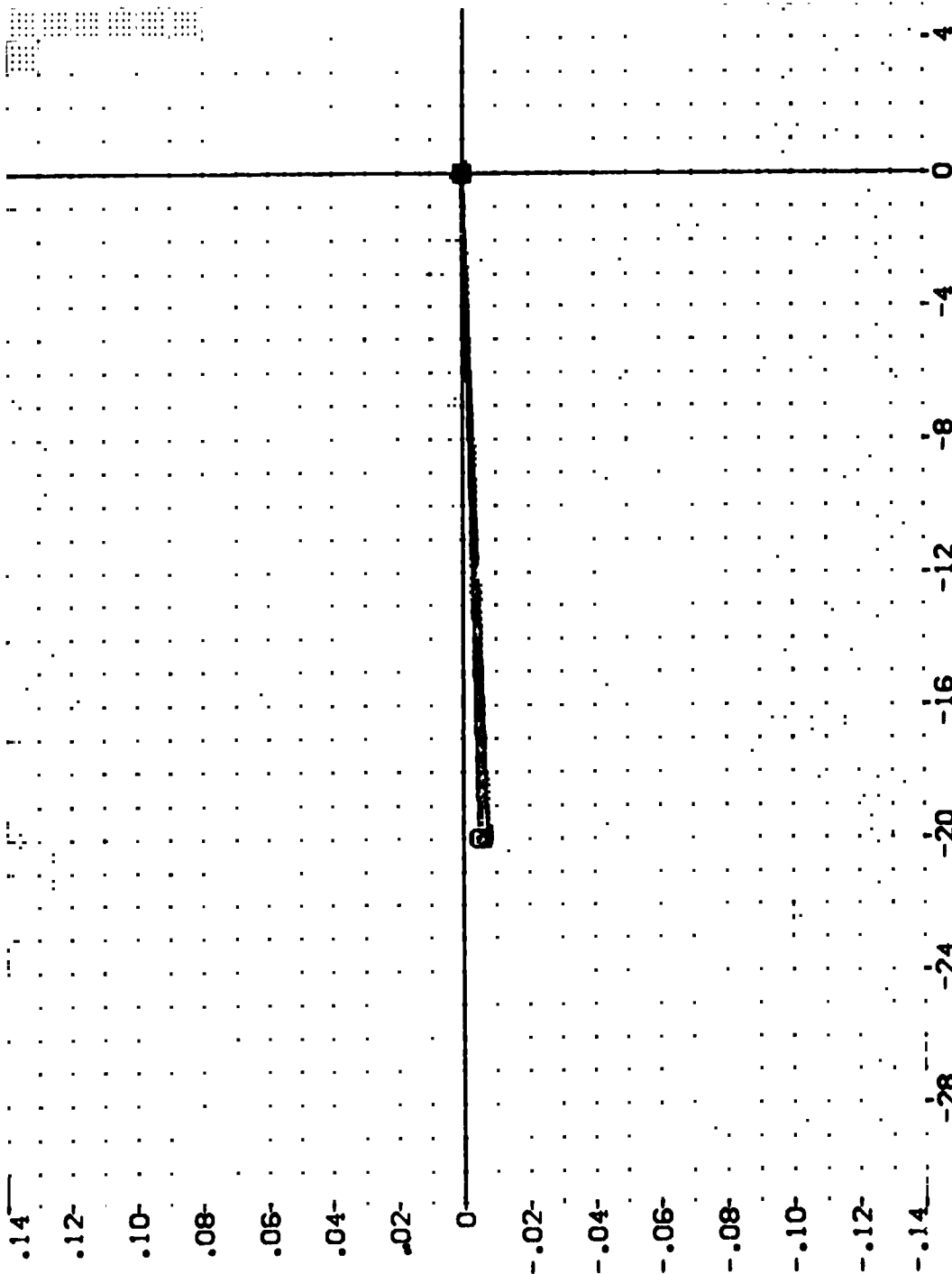


FIG 18 RUDDER EFFECTIVENESS, SPOBRK = 85 DEG., ALPHA = 10 DEG.

(DF5051)

0A110 B61C11F12M51W124E40V19R15X29

SYMBOL		BETA		MACH		PARAMETRIC VALUES		DATA SOURCE		RUDDER		DATASET		RUDDER		SREF		REFERENCE INFORMATION	
□	○	-4.000	4.000	ELEVON	SPDBRK	.200	.000	10.000	.000	-20.000	.000	DF5051	DF5044	.000	.000	LREF	4.4119	50. FT.	NO-ES
◇	△	-2.000	2.000	SPDBRK	BDFLAP	.000	.000	.000	.000	.000	.000	DF5051	DF5044	.000	.000	BREF	19.2259	NO-ES	NO-ES
																YREF	37.9359	NO-ES	NO-ES
																ZREF	43.5674	NO-ES	NO-ES
																SCALE	15.1875	NO-ES	NO-ES
																		SCALE	.0405

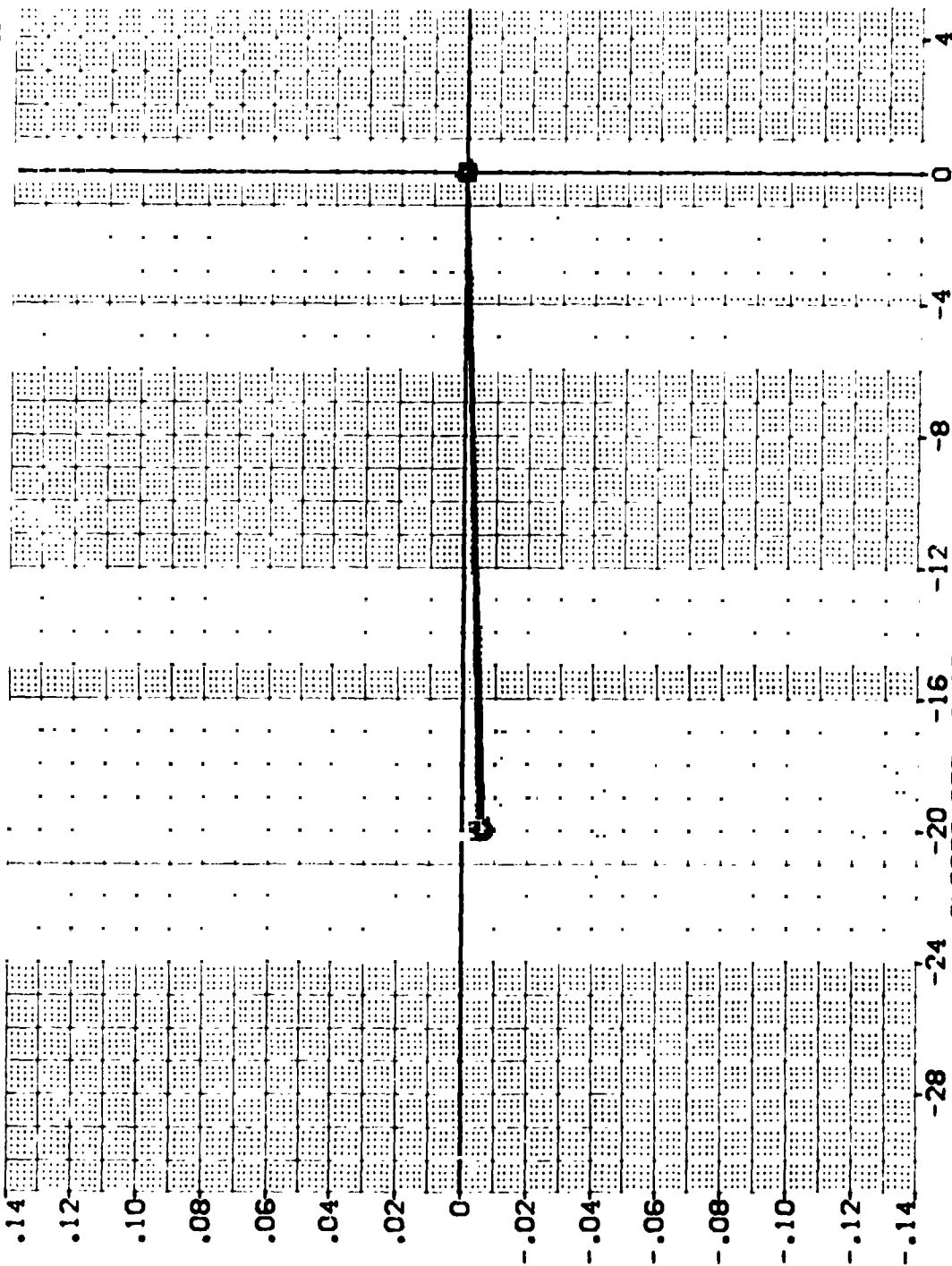


FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

(DF5051)

0A110 B61C11F12M51W124E40V19R15X29

PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION			
BETA	MACH	ALPHA	RUDDER	DATASET	SREF	SQ.FT.	NO-ES	NO-ES
6.000	.200	.000	-20.000	DF5044	19.2299	4.4119	NO-ES	NO-ES
8.000	.000	.000			37.5359	15.1875	NO-ES	NO-ES
10.000	85.000	EDFLAP			43.5974	.0405	NO-ES	NO-ES
12.000					YREF		NO-ES	NO-ES
14.000					ZREF		NO-ES	NO-ES
					SCALE		NO-ES	NO-ES

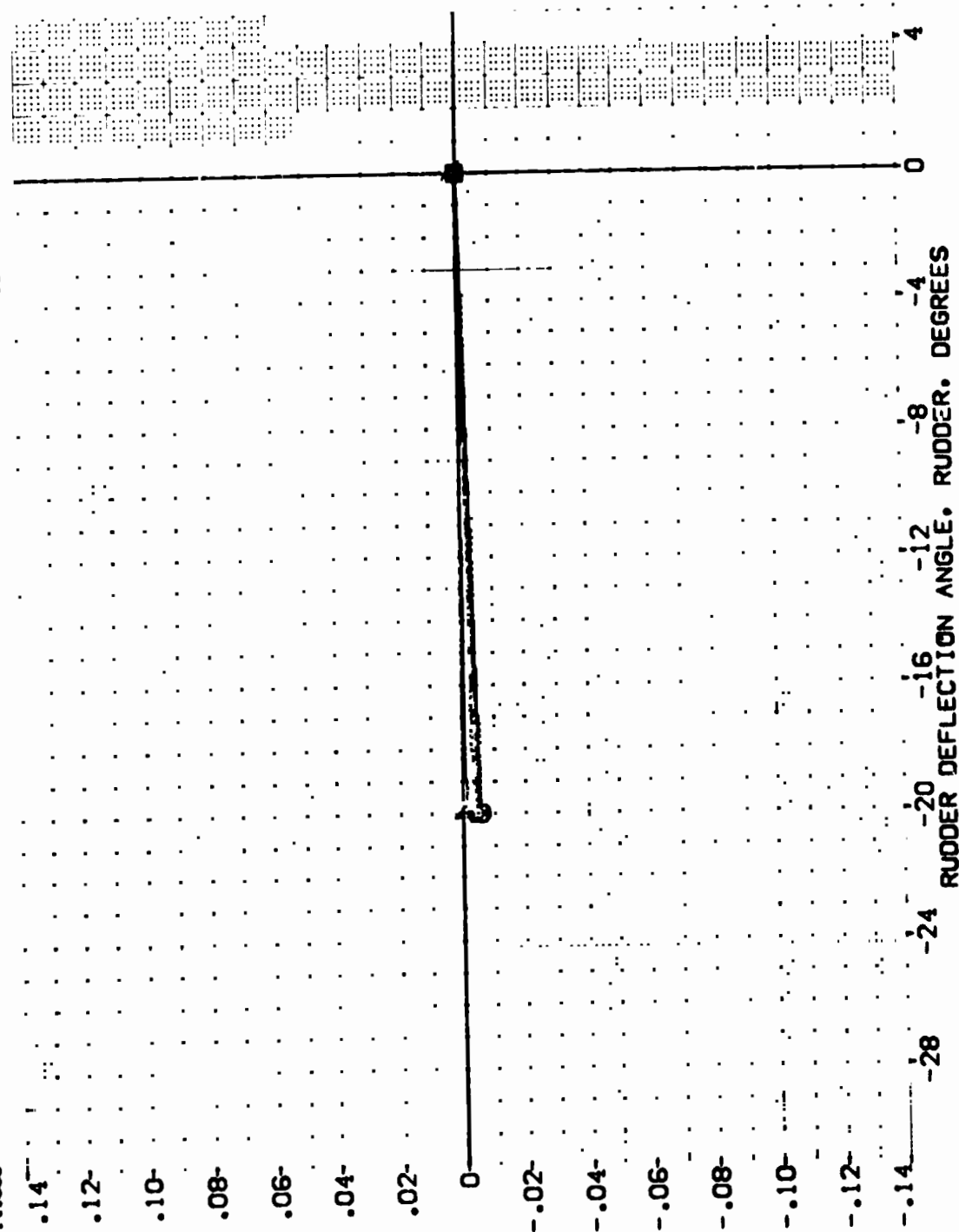


FIG 18 RUDDER EFFECTIVENESS, SPDBRK = 85 DEG., ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EF3043} 0A110 881C11F12G1V124E40V1SR15029
 {EF3045} 0A110 881C11F12G1V124E40V1SR17029
 {EF3047} 0A110 881C11F12G1V124E40V1SR16029

ELEVON AILERON RUDDER SPDBRK
 .000 .000 .000 85.000
 .000 .000 .000 85.000
 .000 .000 .000 85.000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2289 IN.-ES
 BREF 37.5359 IN.-ES
 XPRP 43.5574 IN.-ES
 YPRP .0000 IN.-ES
 ZPRP 15.1875 IN.-ES
 SCALE .0405

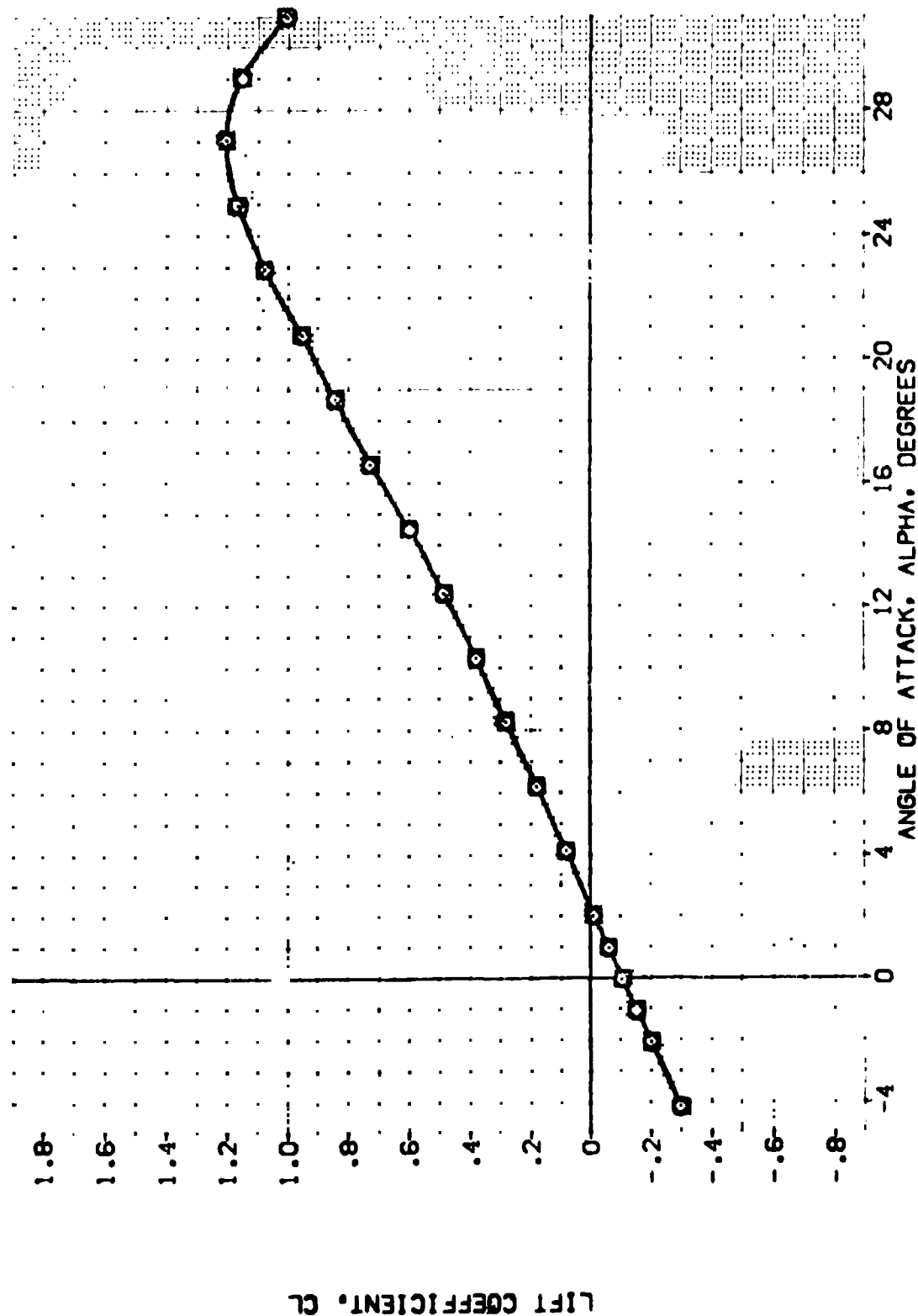


FIG 19 EFFECT OF RUDDER SEALS, SPDBRK = 85 DEG., RUDDER = 0 DEG.-LONGITUDINAL
 (A)MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPDBRK	REFERENCE INFORMATION
{EF3043}	0A110 881C11F1251V124E40V18R15C28	.000	.000	.000	65.000	SREF 4.4119 50.000
{EF3045}	0A110 881C11F1251V124E40V18R17C28	.000	.000	.000	65.000	LREF 19.2239 100.000
{EF3047}	0A110 881C11F1251V124E40V18R16C28	.000	.000	.000	65.000	BREF 37.9359 100.000
						YREF 43.5874 100.000
						ZREF 15.1875 100.000
						SCALE .0405

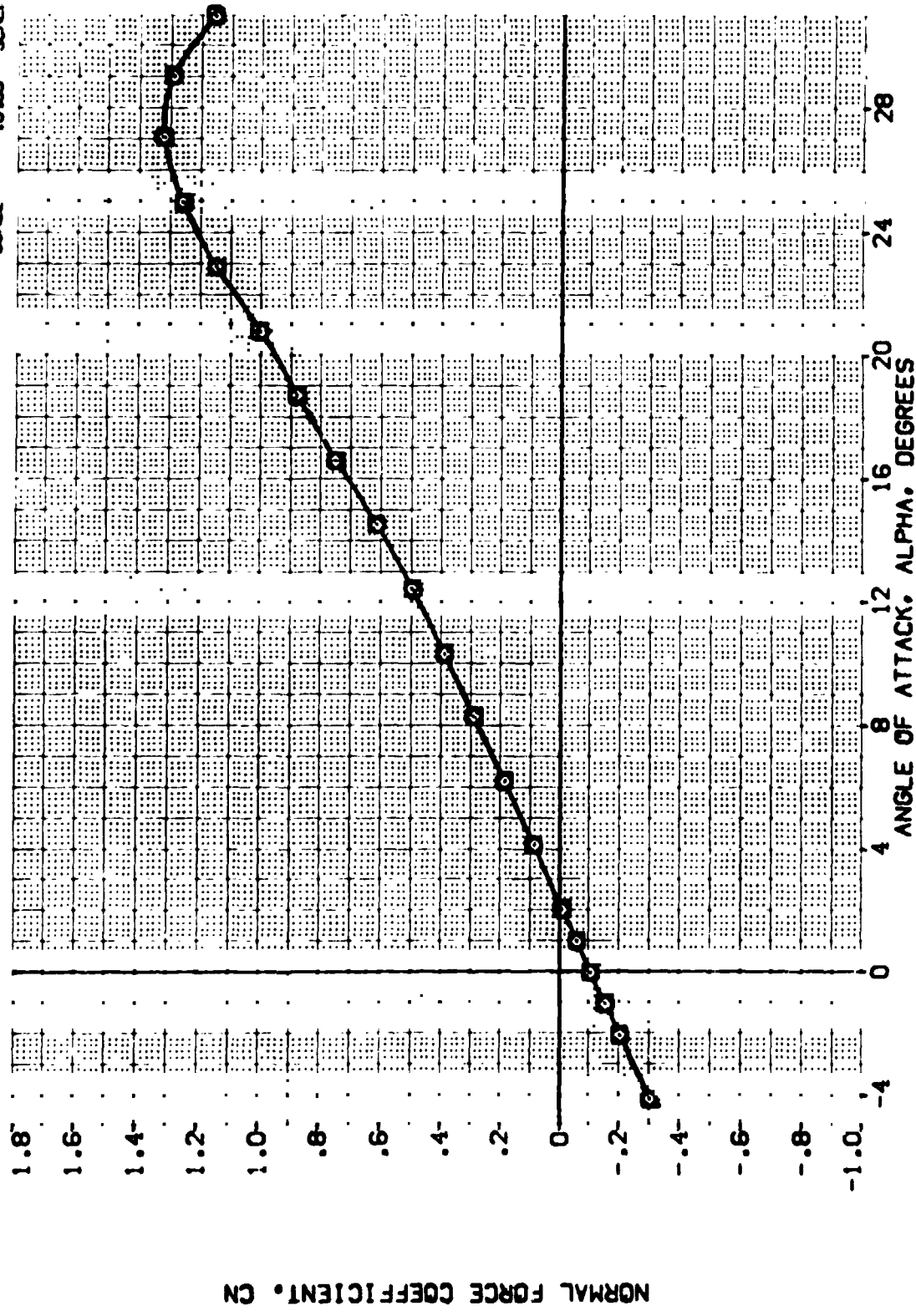


FIG 19 EFFECT OF RUDDER SEALS, SPDBRK = 85 DEG., RUDDER = 0 DEG.-LONGITUDINAL
 (AJMACH = .20) PAGE 129

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {E5043} 0A110 851C11F1251V124E40V18R15C23
 {E5045} 0A110 851C11F1251V124E40V18R17C23
 {E5047} 0A110 851C11F1251V124E40V18R16C23

ELEVON AILRON RUDDER SPDBRK REFERENCE INFORMATION
 .000 .000 .000 85.000 SREF 4.4118 SQ.FT. INO-ES
 .000 .000 .000 85.000 LREF 19.2259 INO-ES
 .000 .000 .000 85.000 BREF 37.9359 INO-ES
 .000 .000 .000 85.000 XREF 43.5674 INO-ES
 .000 .000 .000 85.000 YREF 15.1875 INO-ES
 .000 .000 .000 85.000 ZREF 15.1875 INO-ES
 .000 .000 .000 85.000 SCALE .0405 SCALE

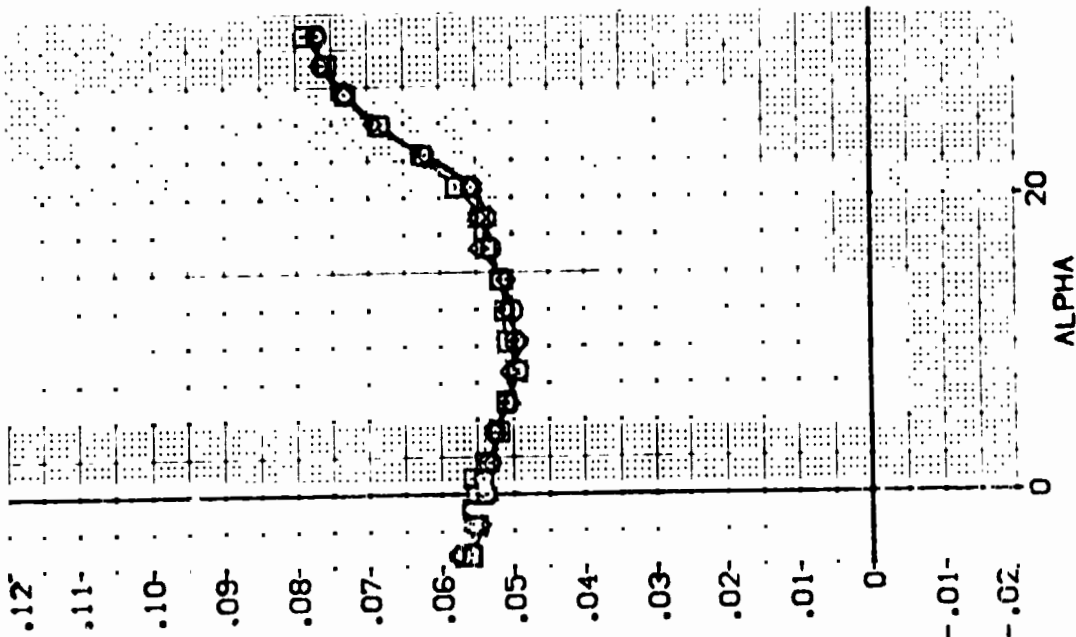
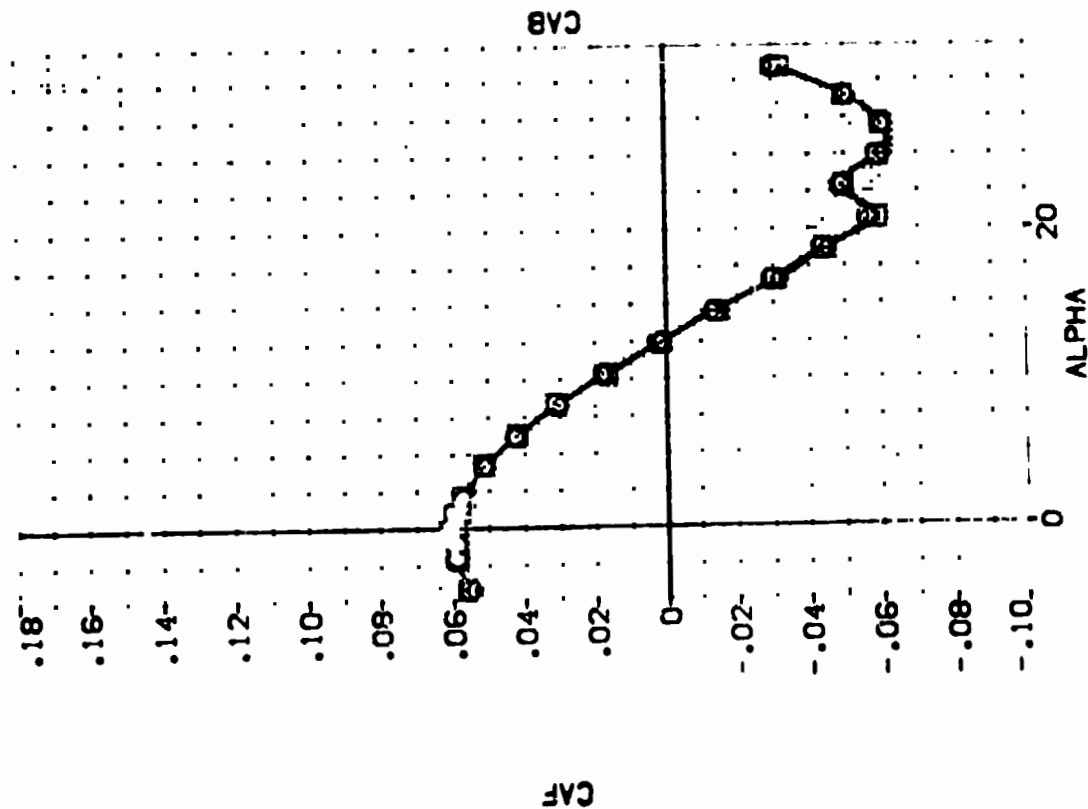


FIG 19 EFFECT OF RUDDER SEALS, SPDBRK = 85 DEG., RUDDER = 0 DEG.-LONGITUDINAL
 (A)MACH = .20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	RUDDER	SPDBRK	REFERENCE INFORMATION
(EF5043)	Q	0A110 051C11F12V61V124E40V1SR15Q28	.000	.000	.000	85.000	9REF 4.4118 50.FT.
(EF5045)	Q	0A110 051C11F12V61V124E40V1SR17Q28	.000	.000	.000	85.000	LREF 19.2235 INCHES
(EF5047)	Q	0A110 051C11F12V61V124E40V1SR16Q28	.000	.000	.000	85.000	9REF 37.5358 INCHES
							XREF 43.5574 INCHES
							YREF .0000 INCHES
							ZREF 15.1875 INCHES
							SCALE .0405 SCALE

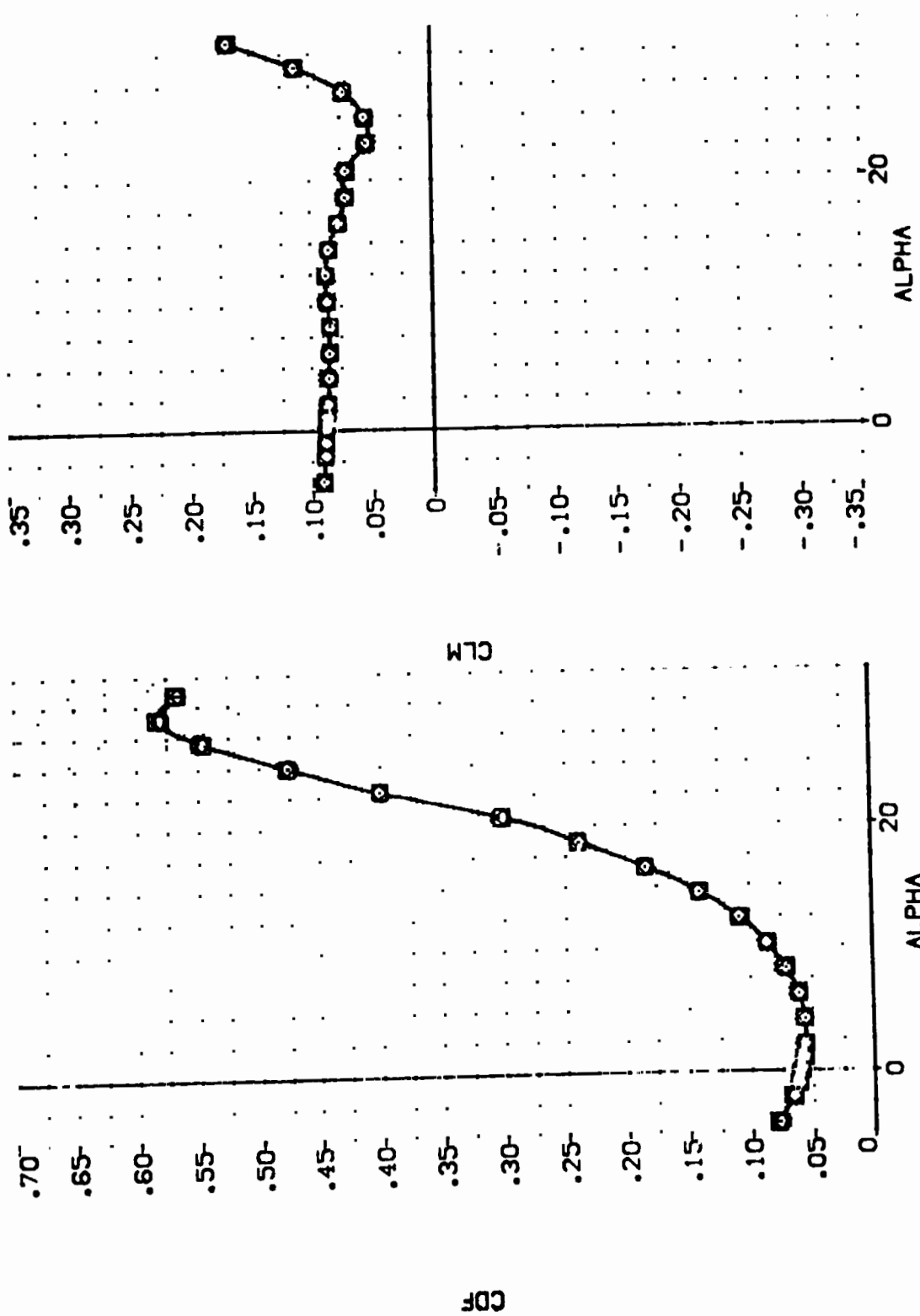


FIG 19 EFFECT OF RUDDER SEALS, SPDBRK = 85 DEG., RUDDER = 0 DEG.-LONGITUDINAL
 (A)MACH = .20

ELEVATION	AIRLON	RUDDER	SP-534K	REFERENCE INFORMATION	50 FT. INCHES
.000	.000	.000	85.000	SREF	4.419
.000	.000	.000	85.000	LREF	19.2299
.000	.000	.000	85.000	BREF	37.9339
.000	.000	.000	85.000	XREF	43.5974
.000	.000	.000	85.000	YREF	.0000
.000	.000	.000	85.000	ZREF	15.1875
.000	.000	.000	85.000	SCALE	.0405

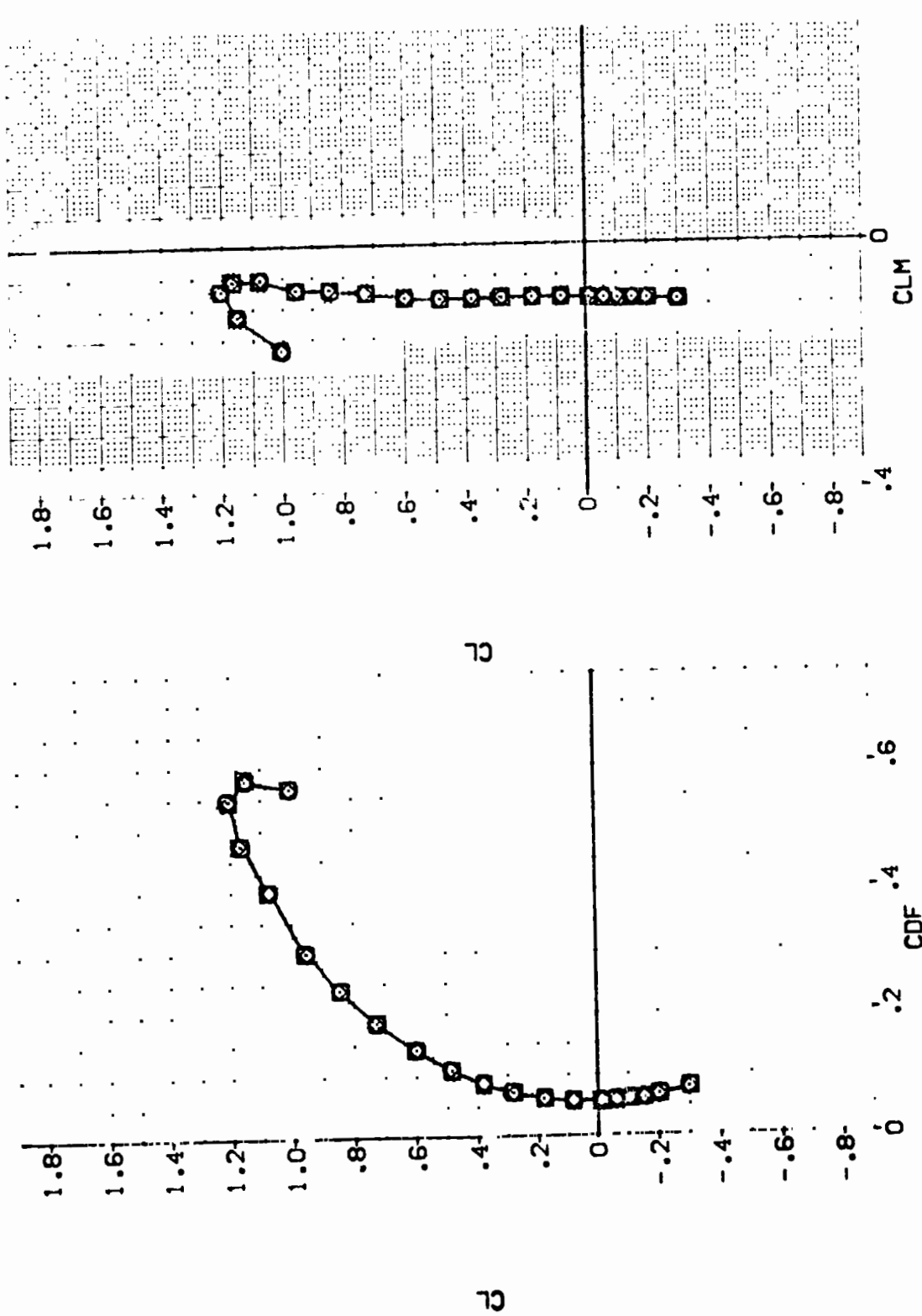


FIG 19 EFFECT OF RUDDER SEALS, SPDBRIK = 85 DEG., RUDDER = 0 DEG., -LONGITUDINAL

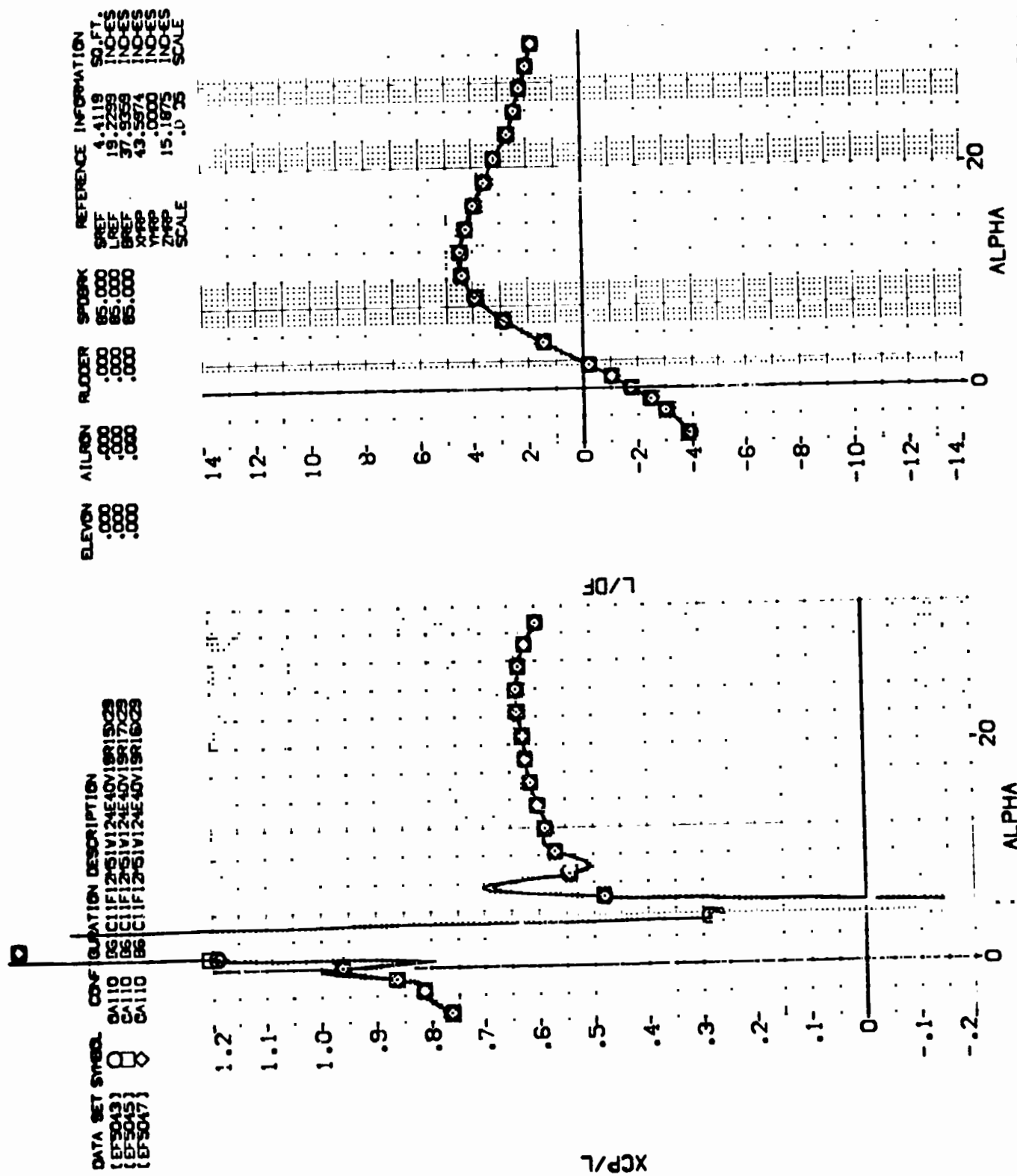


FIG 19 EFFECT OF RUDDER SEALS, SPDBRK = 85 DEG., RUDDER = 0 DEG.-LONGITUDINAL
 (A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RFS04) 0A110 BS1C11F12S1V124E40V19R15X29
 (RFS045) 0A110 BS1C11F12S1V124E40V19R17X29
 (RFS046) 0A110 BS1C11F12S1V124E40V19R16X29

ALPHA RUDDER SPDBRK AILRON
 10.000 .000 85.000 .000
 10.000 .000 85.000 .000
 10.000 .000 85.000 .000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT.
 LREF 19.2239 INCHES
 BREF 37.9359 INCHES
 XMRP 43.5974 INCHES
 YMRP .0000 INCHES
 ZMRP 15.1875 INCHES
 SCALE .0405

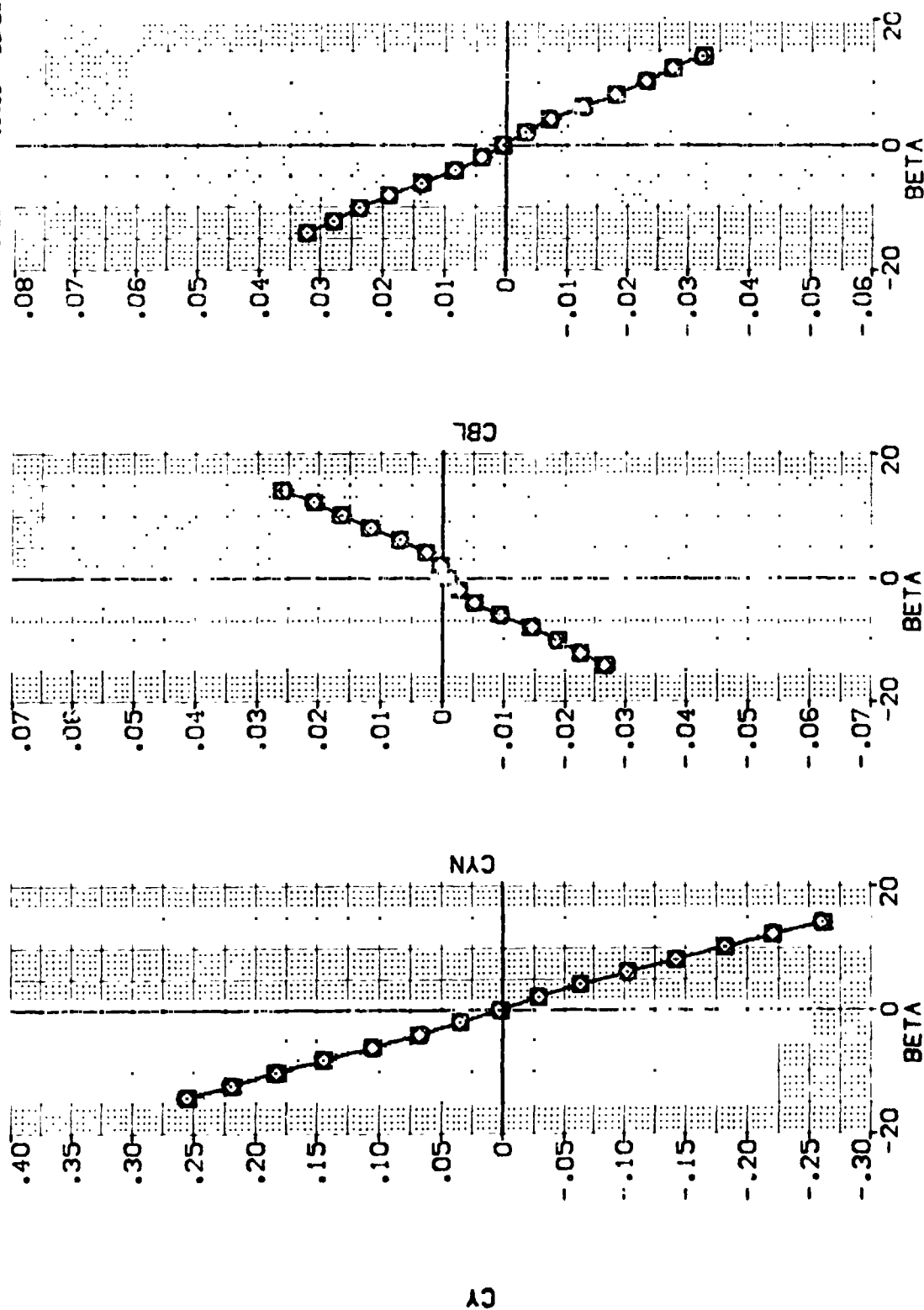


FIG 20 EFFECT OF RUDDER SEALS, SPDBRK = 85 DEG., RUDDER = 0 DEG.

(A)MACH = .20

ALPHA	RUDDER	SPODBK	AIRRON	REFERENCE INFORMATION
10.000	-20.000	85.000	.000	SREF 4.4119
10.000	.000	85.000	.000	LREF 19.2299
				BREF 37.9359
				YREF 43.5974
				YTRP .0000
				ZTRP 15.1875
				SCALE .0405

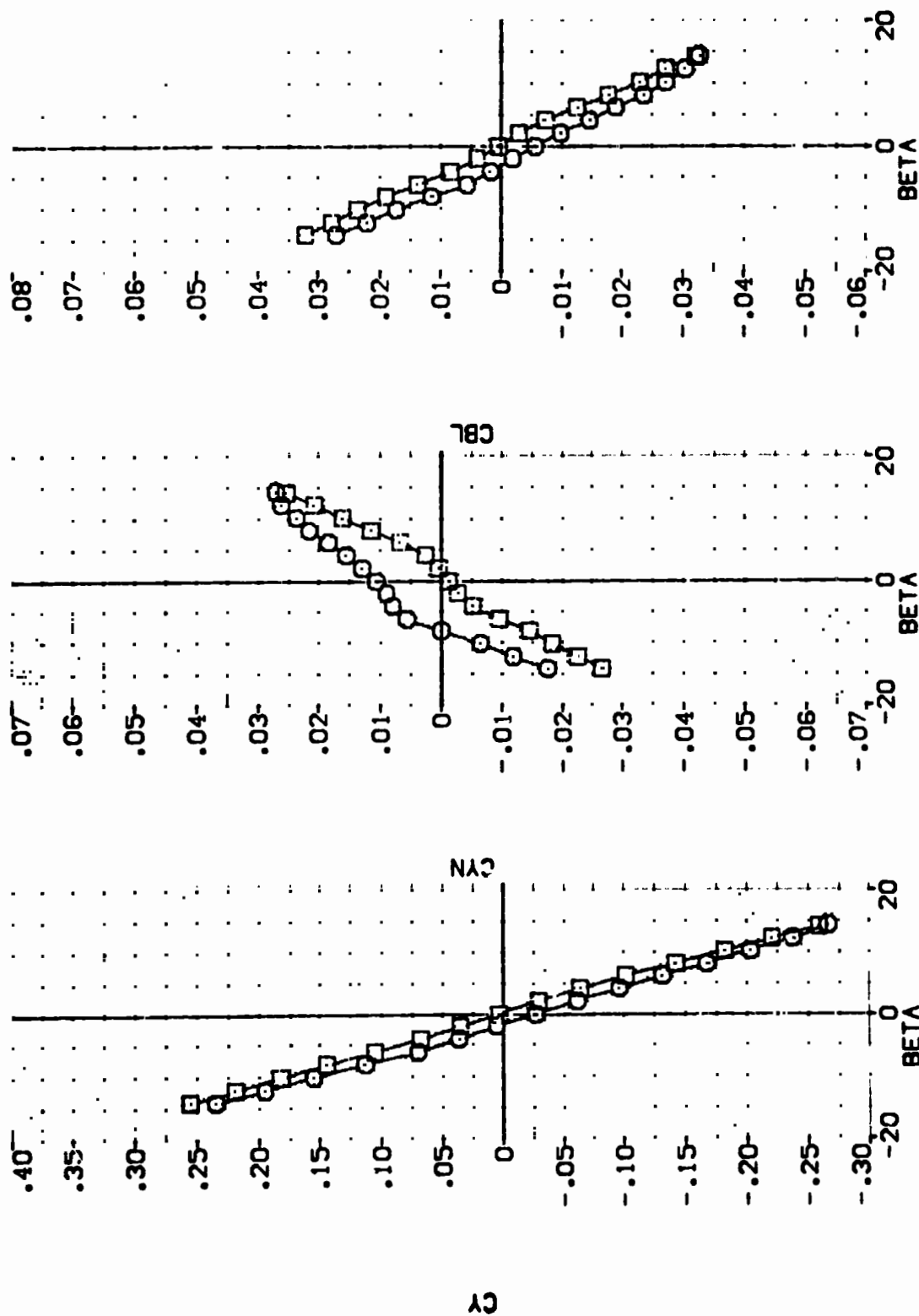


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

$$C_A)_{MACH} = .20$$



SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

DATA SET SYMBOL: 8
CONFIGURATION DESCRIPTION: 8A110 8B1C11F1251V124E40V19R1B23
[H5049] [H5048]
REFERENCE INFORMATION:
SKET 4.4119 SQ.FT.
LREF 19.2299 INCHES
BREF 37.9359 INCHES
XREF 43.5874 INCHES
YREF .0000 INCHES
ZREF 15.1875 INCHES
SCALE .0405

MACH .200
ELEV .000
SPOBRK 85.000
BETA 85.000

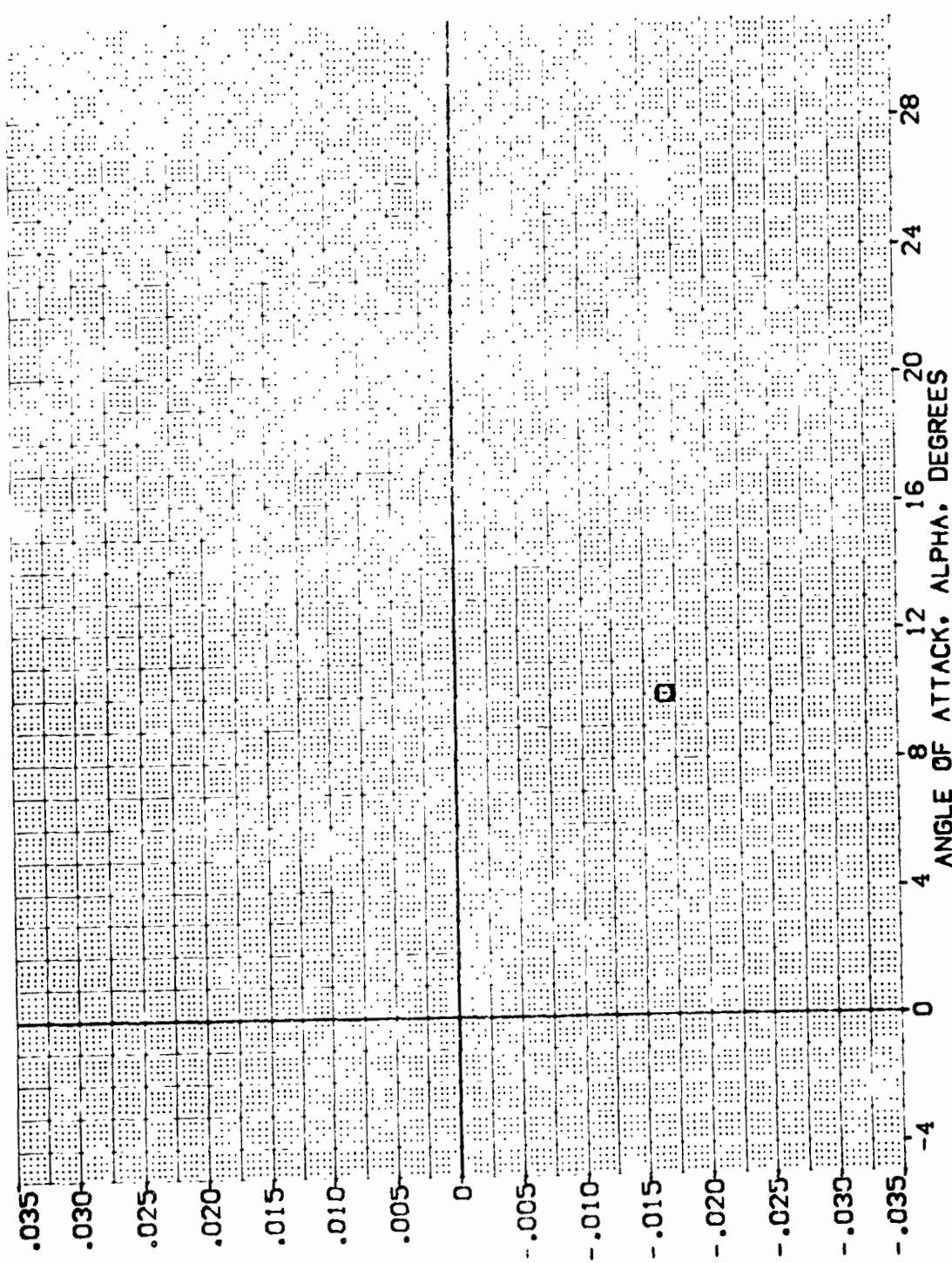


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION

01110 0011111215112141019181028

01110 0011111215112141019181028

MACI ELEVON SPDBRK BETA

.200 .000 65.000

.200 .000 65.000

REFERENCE INFORMATION

SREF 4.4119 52.17

LREF 19.2259 100-ES

BREF 37.5359 100-ES

XRP 43.5974 100-ES

YRP .0000 100-ES

ZRP 15.1875 100-ES

SCALE .0405 100-ES

YAWING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CYNBET, PER DEGREE

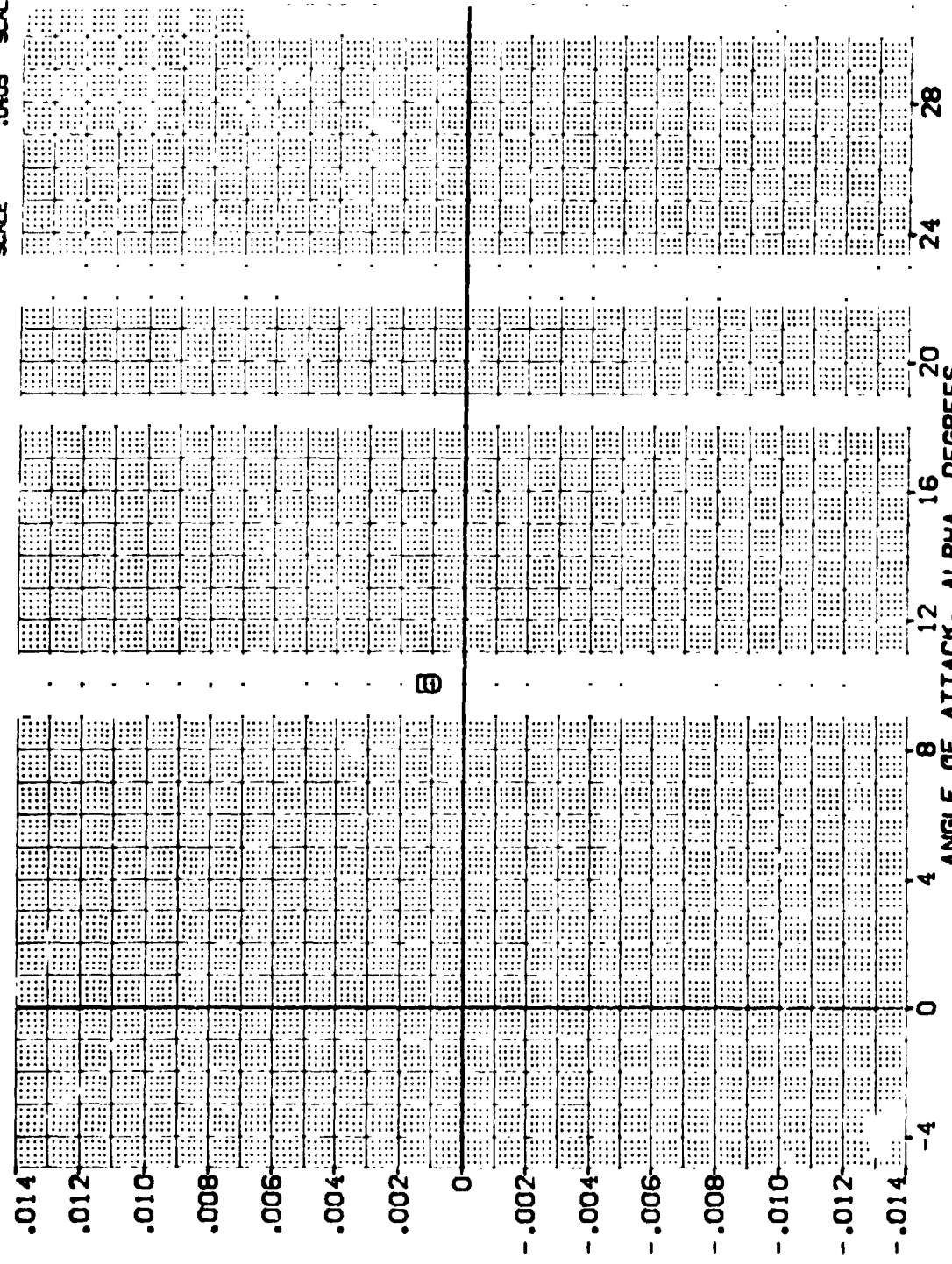


FIG 2i RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	ELEVON	SPOBRK	BETA	REFERENCE INFORMATION
{MF3049}	0A110 BSIC11F12V51V124E40V1SR16C29	.200	.000	85.000		SREF 4.4119 SQ.FT.
{MF3048}	0A110 BSIC11F12V51V124E40V1SR16C29	.200	.000	85.000		LREF 19.2299 INCHES
						BREF 37.9359 INCHES
						XHREF 43.5974 INCHES
						YHREF .0000 INCHES
						ZHREF 15.1875 INCHES
						SCALE .0405

ROLLING MOMENT COEFFICIENT DERIVATIVE WITH BETA, CBLBET, PER DEGREE

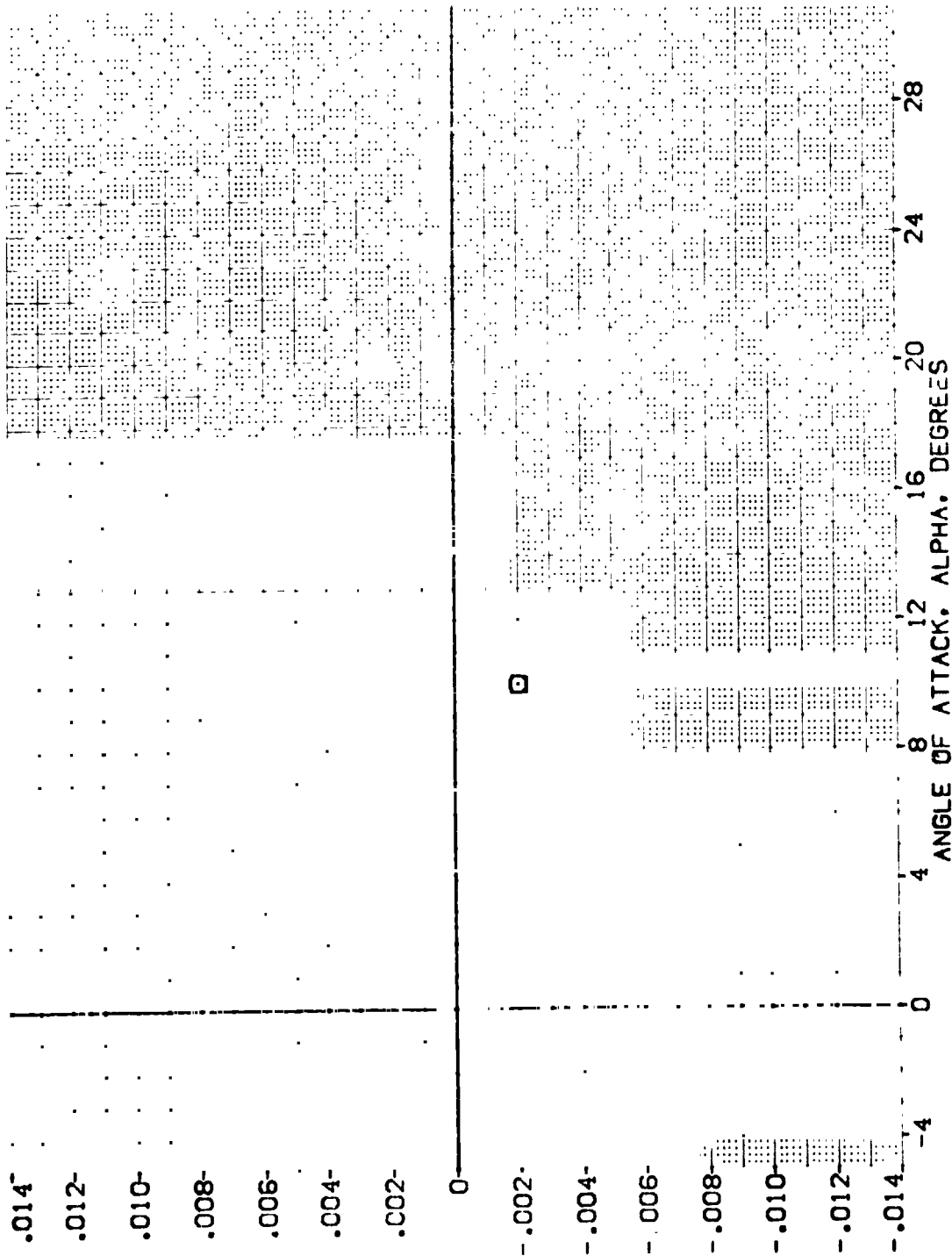


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R16X29 (DF5049)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	□	-14.000	MACH	.200	ALPHA	10.000	DATASET	RUDER	SREF
◇	△	-12.000	ELEVON	.000	AIRLON	.000	DF5049	.000	19.2299
		-10.000	SPDRNK	85.000	BOFLAP	-12.000			37.5359
		-8.000							43.5874
		-6.000							.0000
									15.1875
									.0405
									SCALE

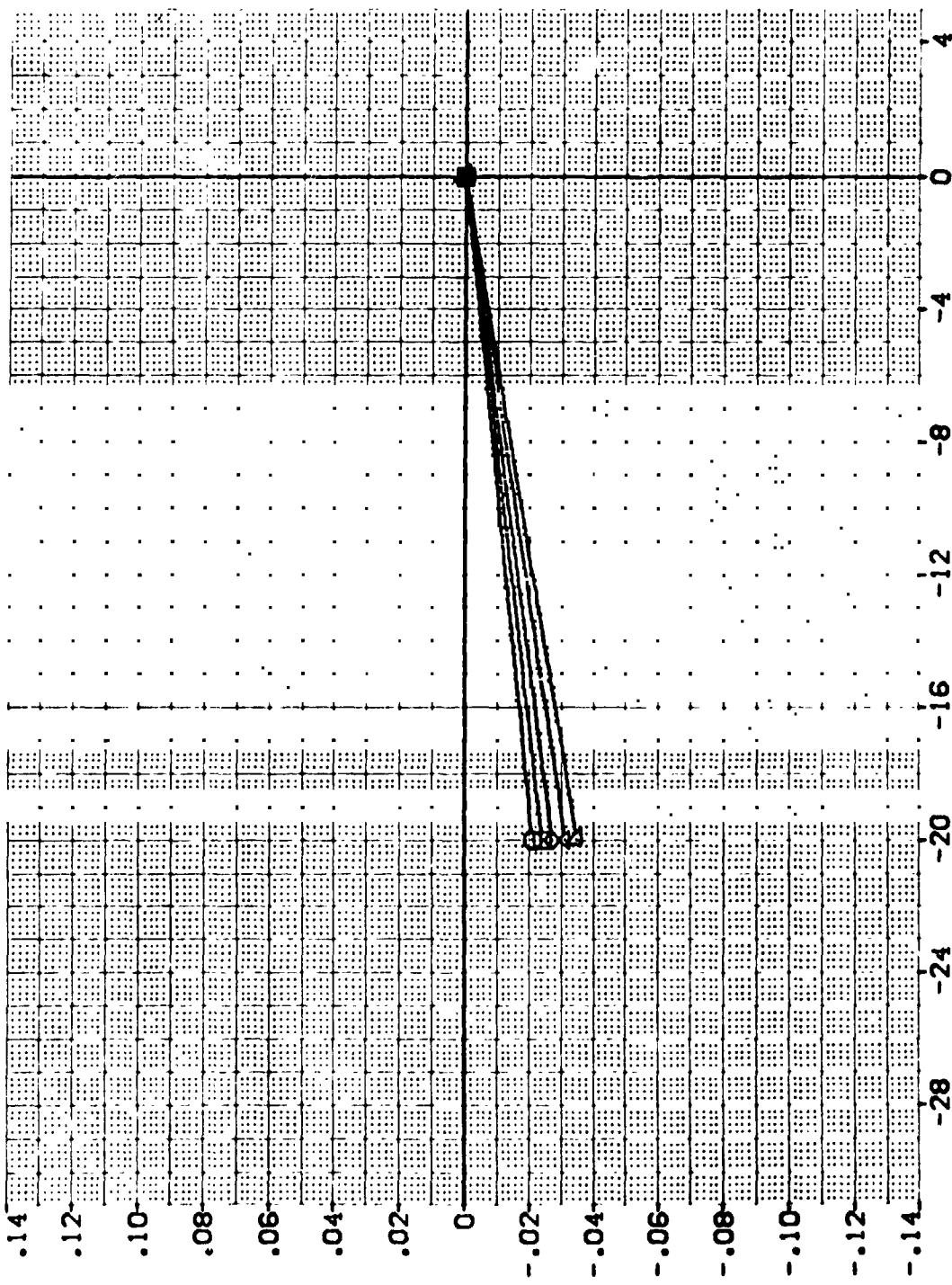


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

0A110 861C11F12M51W124E40V19R16X29 (DF5049)

SYMBOL	BETA	MACH	ELEVON	SPOBRK	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	-4.000				ALPHA	RUDDER	4.4119 SQ.FT.
□	-2.000				.000	DATASET	19.2299 INCHES
◇	.000				10.000	DF5049	37.9359 INCHES
△	2.000				.000	DF5049	43.5974 INCHES
▽	4.000				-12.000	DF5049	15.1875 INCHES
						SCALE	.0405

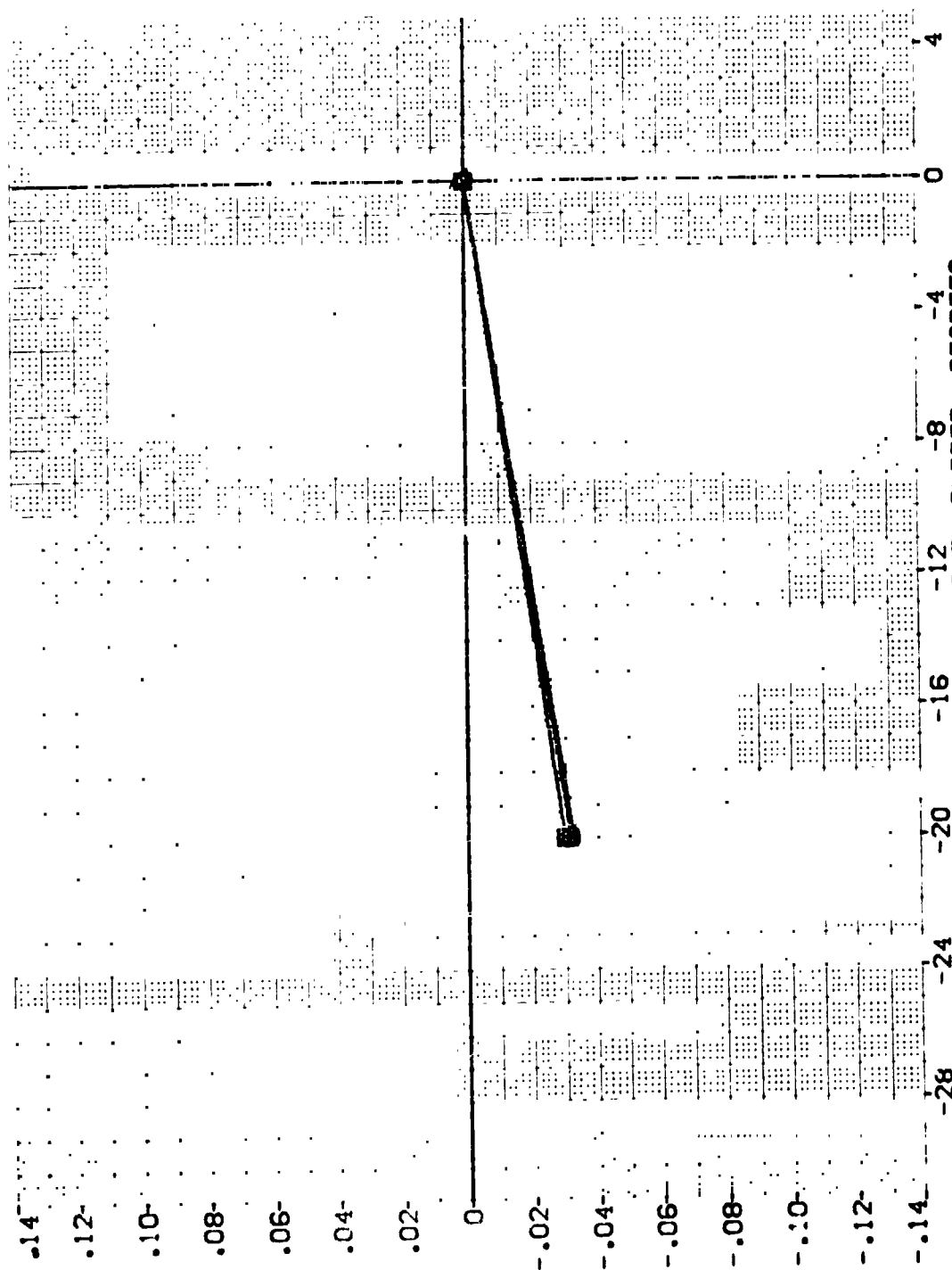


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

0A110 B61C11F12M51W124E40V19R16X25 (DF5049)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
BETA	8.000	MAC	10.000	DATA SET	RUDDER
8.600	ALPHA	10.000	DATA SET	DF5049	DF5048
9.600	AILRON	.000	DF5049		
10.000	BD FLAP	-12.000			
12.000					
14.000					

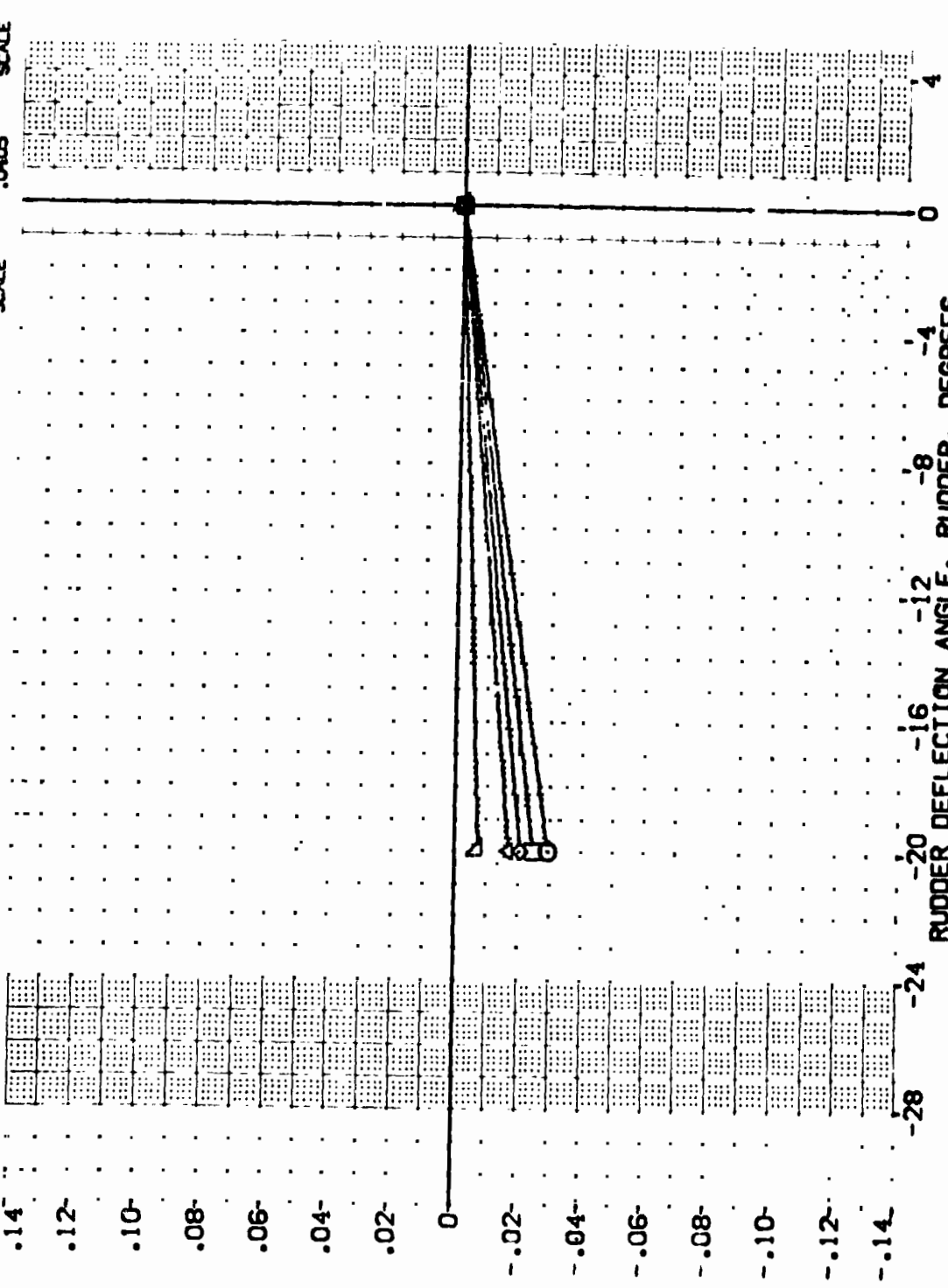


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

(DF5049)

0A110 B61C11F12M51W124E40V19R16X29

SYMBOL	BETA	MACH	ELEVON	SPDRBK	PARAMETRIC VALUES	DATA SOURCE	DATASET	RUDDER	SRF	REFERENCE INFORMATION
○	-14.000				.200 ALPHA	RUDDER	D-5048	.J00	REF	4.4118 SQ.FT.
□	-12.000				.000 AILRON		D-5049		REF	19.2238 INO-ES
◇	-10.000				65.000 BDLAP				REF	37.9339 INO-ES
△	-8.000								REF	43.5674 INO-ES
▽	-6.000								REF	.0000 INO-ES
									REF	15.1875 INO-ES
									REF	.0405 SCALE

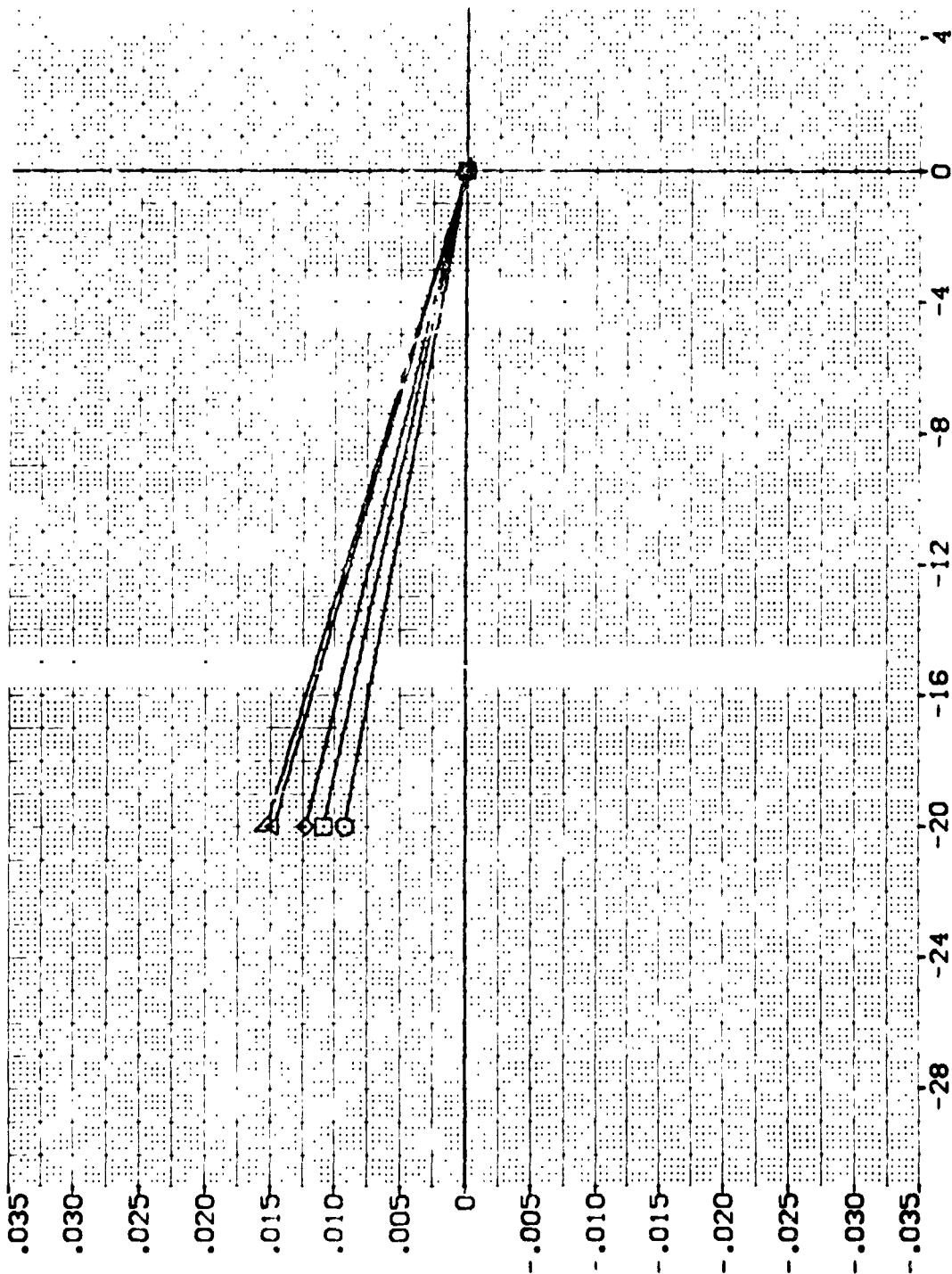


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

(DF5049)

BETA
-1.000
-2.000
.000
2.000
4.000

PHONETIC VALUES

.200	ALPHA
.000	ALPHON
85.000	BOFLAP

DATA SOURCE	FLUDDER
10.000	DF5049
.000	-20.000
-12.000	

DATASET	SLIDER	SHEET
OF5048	.000	LEFT
		RIGHT
		XREF
		YREF
		ZREF
		SCALE

REFERENCE INFORMATION

4.4119	50.57:
19.2299	IN-ES
37.9369	IN-ES
43.5974	IN-ES
0.0000	IN-ES
15.1875	IN-ES
0.0405	SCALE

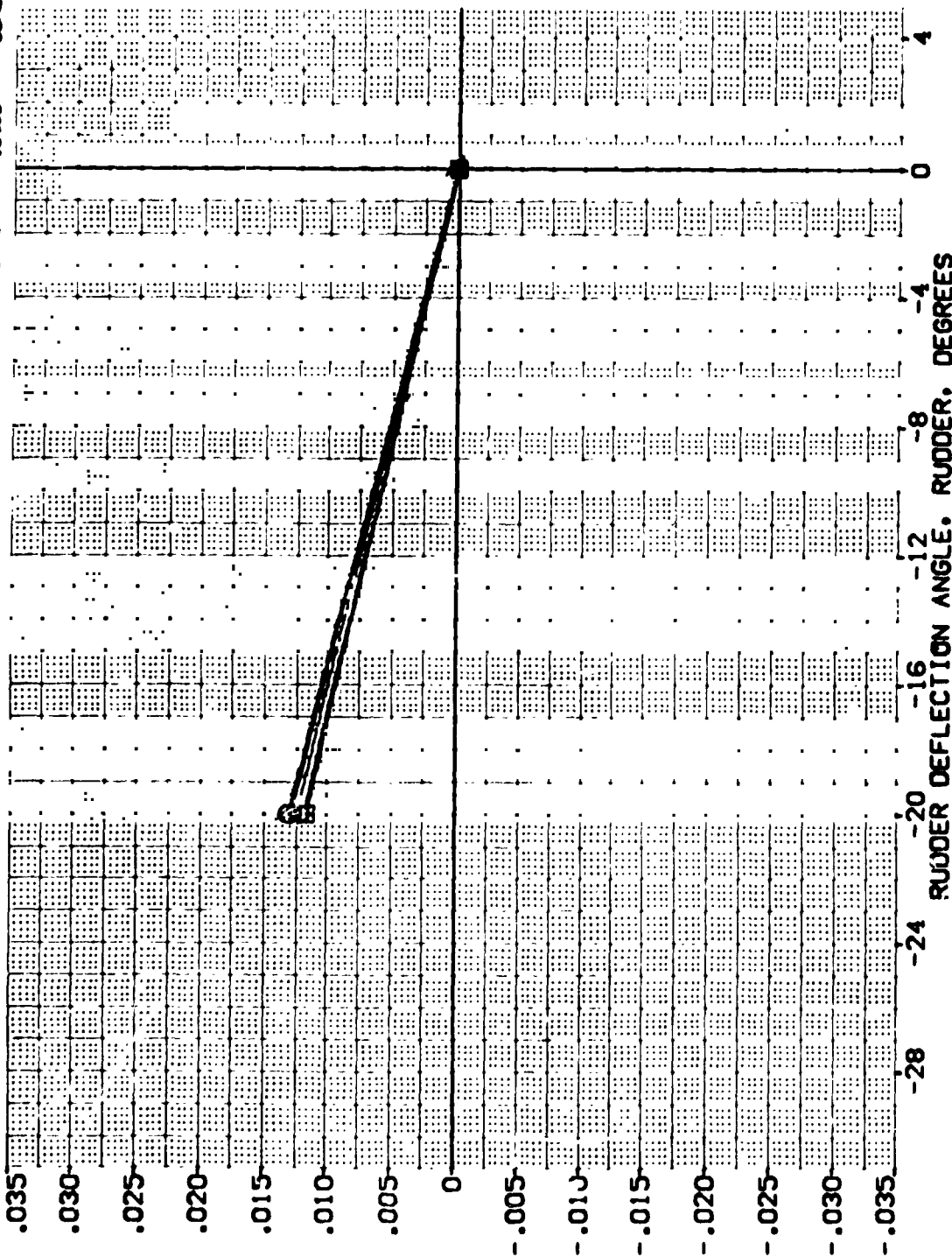


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

INCREMENTAL YAWING MOMENT COEFFICIENT, DCYN

0A110 B61C11F12M51W124E40V19R16X29

(OF5049)

SYMBOL	PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
	BETA	MAO	ALPHA	AILRON	RUDDER	DATASET	RUDDER	SREF	SO.FT.	IN-ES
○	6.000	ELEVON	.200		-20.000	DF5049	.000	UREF	4.4119	IN-ES
□	8.000	SPOILER	.000	BDTAP				YREF	19.2299	IN-ES
◇	10.000		85.000					YREF	37.9559	IN-ES
△	12.000							YREF	43.5574	IN-ES
▽	14.000							YREF	.0000	IN-ES
								SCALE	15.1875	IN-ES
									.0405	SCALE

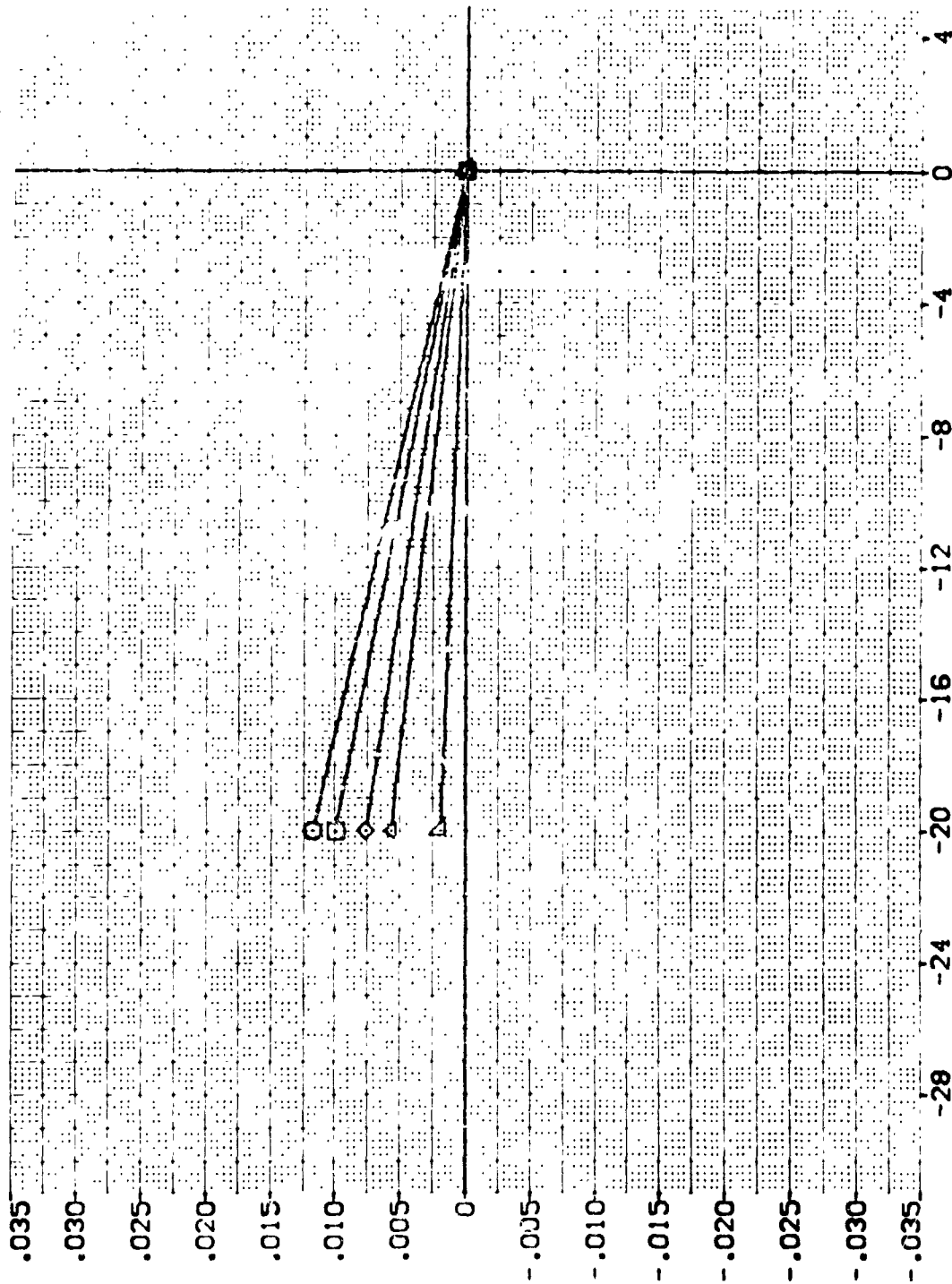


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

C. W

0A110 B61C11F12M51W124E40V19R16X29

(DF5049)

SYMBOL
O
□
◇
△
▽

BETA
-14.000
-12.000
-10.000
-8.000
-6.000

MACH
ELEVON
SPDRK

PARAMETRIC VALUES
.200 ALPHA
.000 AILRON
85.000 BOTLAP

DATA SOURCE
RUDDER
-20.000

DATASET
DF5049
10.000
-12.000

REFERENCE INFORMATION
SREF
1.4119
5.2299
47.5353
43.5974
15.1875
1.0405

RUDDER
.000

SCALE
SO.FT
INCHES
INCHES
INCHES
INCHES
INCHES
SCALE

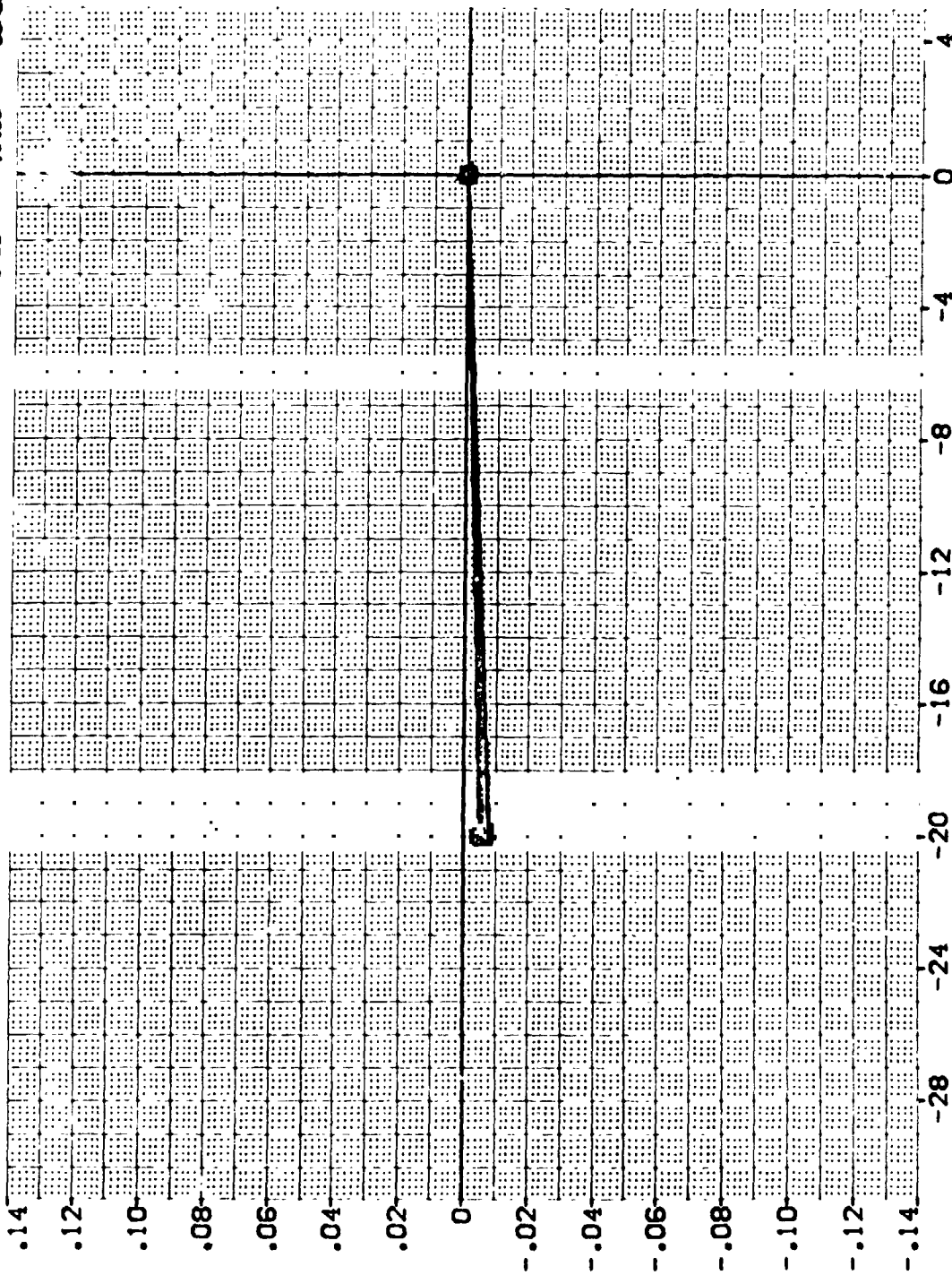



FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.



BETA
-4,000
-2,000
.000
2,000
4,000

PARAMETRIC VALUES

DATA SOURCE
BUDDER
-20,000

840530
DATASET

SCALE
ZMRP
YMRP
XMRP
BREF
LREF
SREF

REFERENCE INFORMATION

4.4119	50 FT.
19.7298	IN-OES
37.9359	IN-OES
43.5974	IN-OES
0000	IN-OES
15.1875	IN-OES
.0405	SCALE

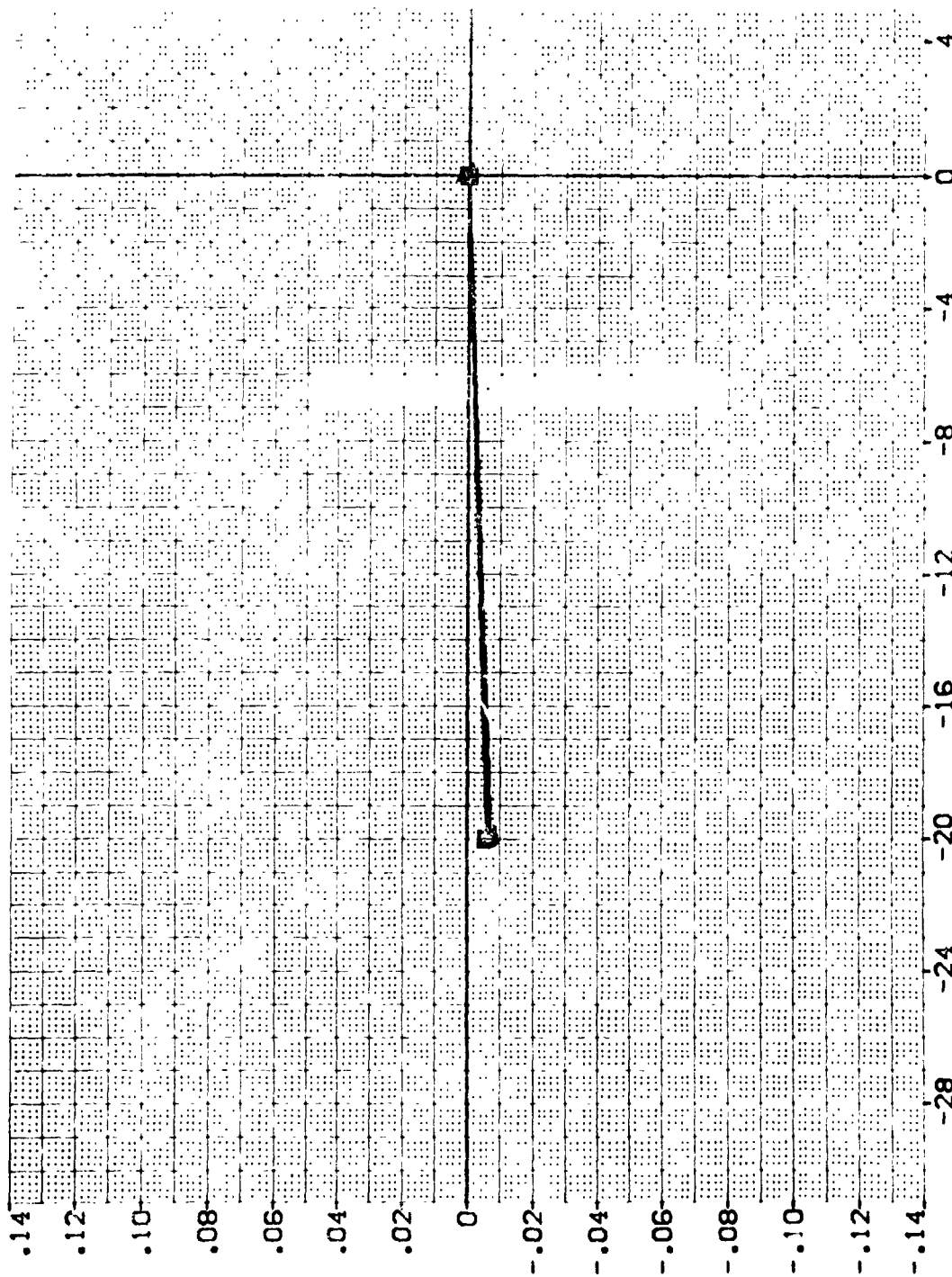


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.



INCREMENTAL ROLLING MOMENT COEFFICIENT, DCBL

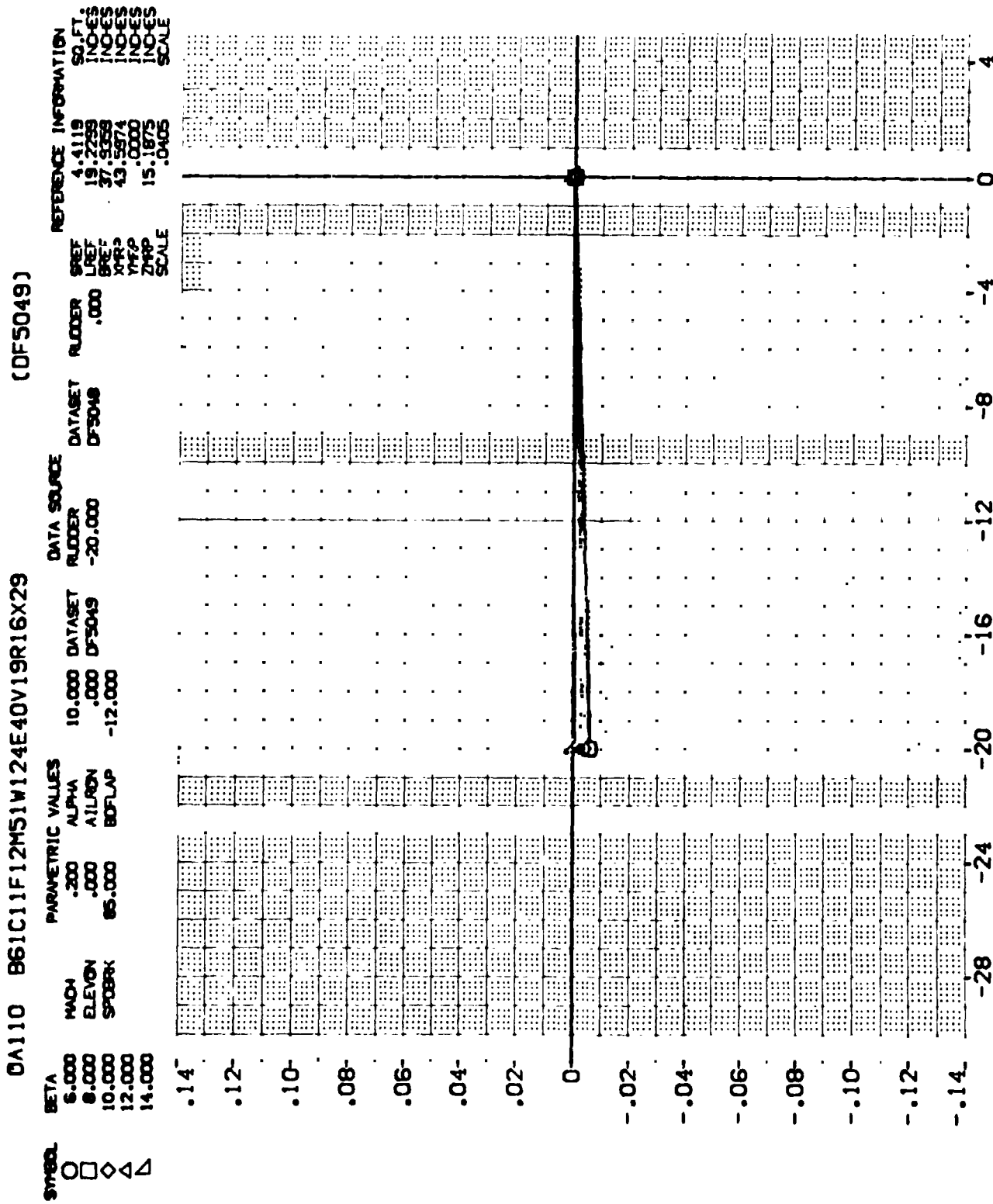


FIG 21 RUDDER EFFECTIVENESS, HINGELINE SEAL OFF, ALPHA = 10 DEG.

DATA SET SYMBL. CONFIGURATION DESCRIPTION
 (EF3043) 0110 861C11F12151V124E40V18R15X29
 (EF3054) 0110 861C11F12151V124E40V21R15X29

ELEVON AILURON RUDDER SPEEDBRK
 .000 .000 .000 85.000
 .000 .000 .000 85.000
 REFERENCE INFORMATION
 SREF 4.4119 50.FT.
 LREF 19.2259 IN-OES
 BREF 37.9359 IN-OES
 XMRP 43.5874 IN-OES
 YMRP .0000 IN-OES
 ZMRP 15.1875 IN-OES
 SCALE .0405 SCALE

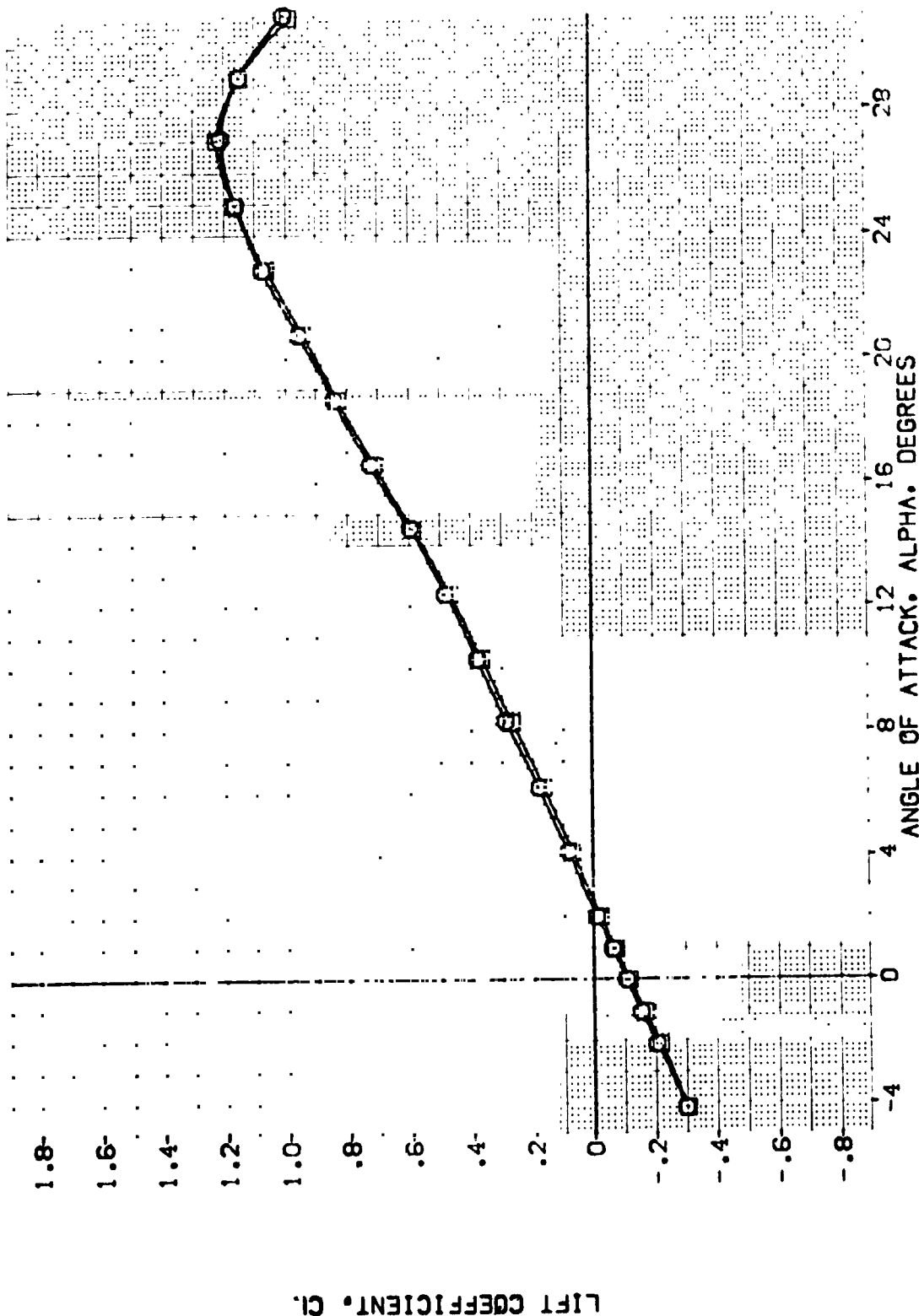


FIG 22 EFFECT OF SPEEDBRAKE BASE, S_{DBRK} = 85, RUDDER = 0 - LONGITUDINAL

DATA SET SYMBOL: 0110 051011F1201V124E40V18R15X28
 {EP3043} 0110 051011F1201V124E40V18R15X28
 {EP3054}

CONFIGURATION DESCRIPTION

ELEVON .000 AILRON .000 RUDDER .000 SPEEDBRK 85.000
 .000 .000 .000 .000

REFERENCE INFORMATION

SREF 4.4119 80.FT. INO-ES
 LREF 19.2289 INO-ES
 BREF 37.9359 INO-ES
 XREF 43.5974 INO-ES
 YREF 15.0000 INO-ES
 ZREF 15.1875 INO-ES
 SCALE .0405 SCALE

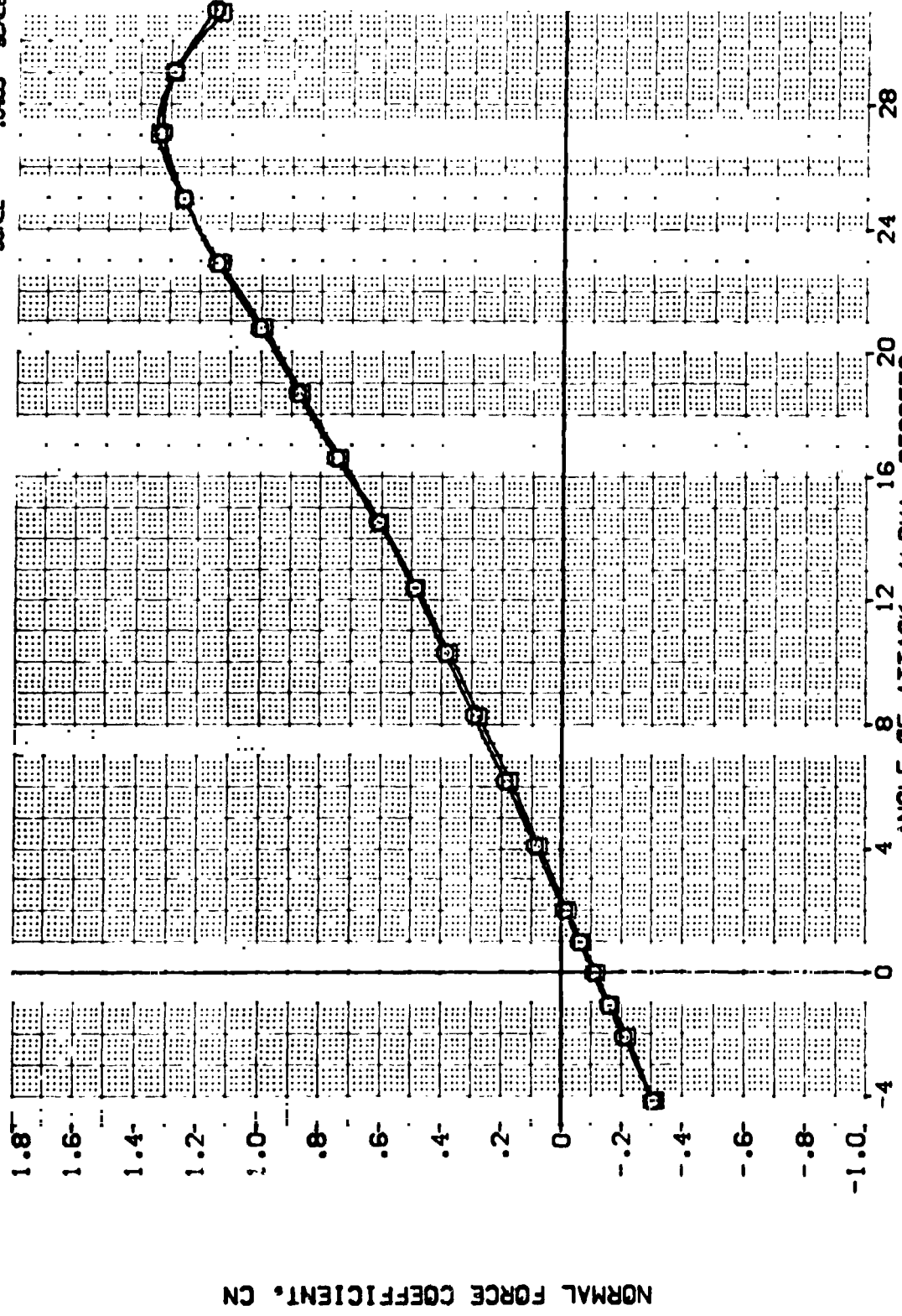


FIG 22 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 85, RUDDER = 0 - LONGITUDINAL
 (A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {EF3043} BA110 BS1C11F12V31V124E40V19R15Q28
 {EF3054} BA110 BS1C11F12V31V124E40V21R15Q28

ELEVON AILRON RUDDER SPEEDBRK REFERENCE INFORMATION
 .000 .000 .000 85.000 SREF 4.4119 SQ.FT.
 .000 .000 .000 85.000 LREF 19.2288 INO-ES
 .000 .000 .000 85.000 BREF 37.9369 INO-ES
 .000 .000 .000 85.000 YPRP 43.9874 INO-ES
 .000 .000 .000 85.000 ZPRP 15.1875 INO-ES
 .000 .000 .000 85.000 SCALE .0405

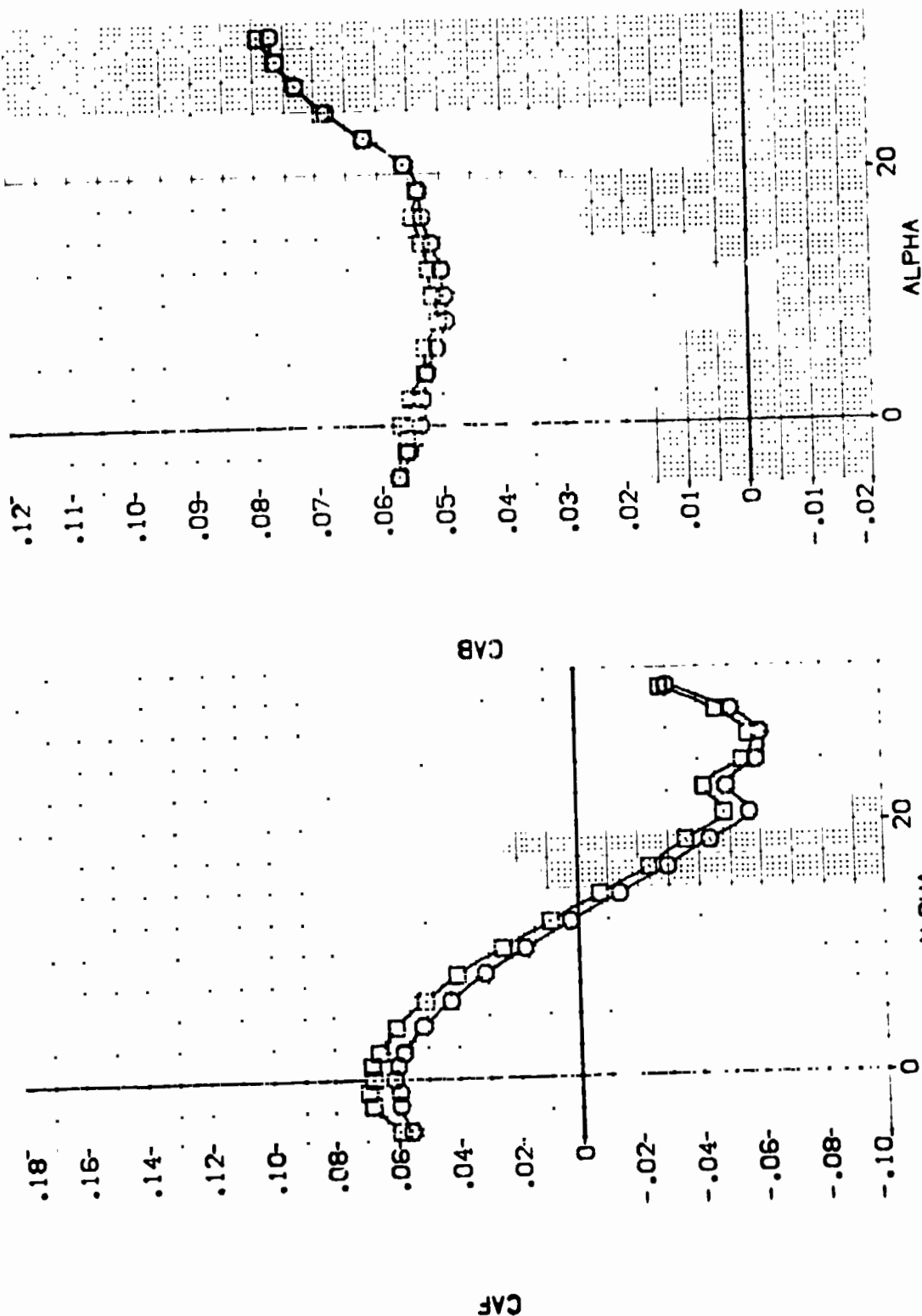


FIG 22 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 85, RUDDER = 0 - LONGITUDINAL

(A)MACH = .20

DATA SET 5700L CONFIGURATION DESCRIPTION
 (E73043) 0A110 881C11F1251V124E40V18R15C28
 (E75064) 0A110 881C11F1251V124E40V21R15C28

ELEVON AILRON RUDDER SPEEDBRK REFERENCE INFORMATION
 .000 .000 .000 85.000 SREF 4.4119 SO.FT.
 .000 .000 .000 .000 LREF 19.2299 INO-ES
 .000 .000 .000 .000 XREF 37.9359 INO-ES
 .000 .000 .000 .000 YREF 43.5974 INO-ES
 .000 .000 .000 .000 ZREF .0000 INO-ES
 .000 .000 .000 .000 SCALE 15.1875 INO-ES
 .000 .000 .000 .000 SCALE .0465 INO-ES

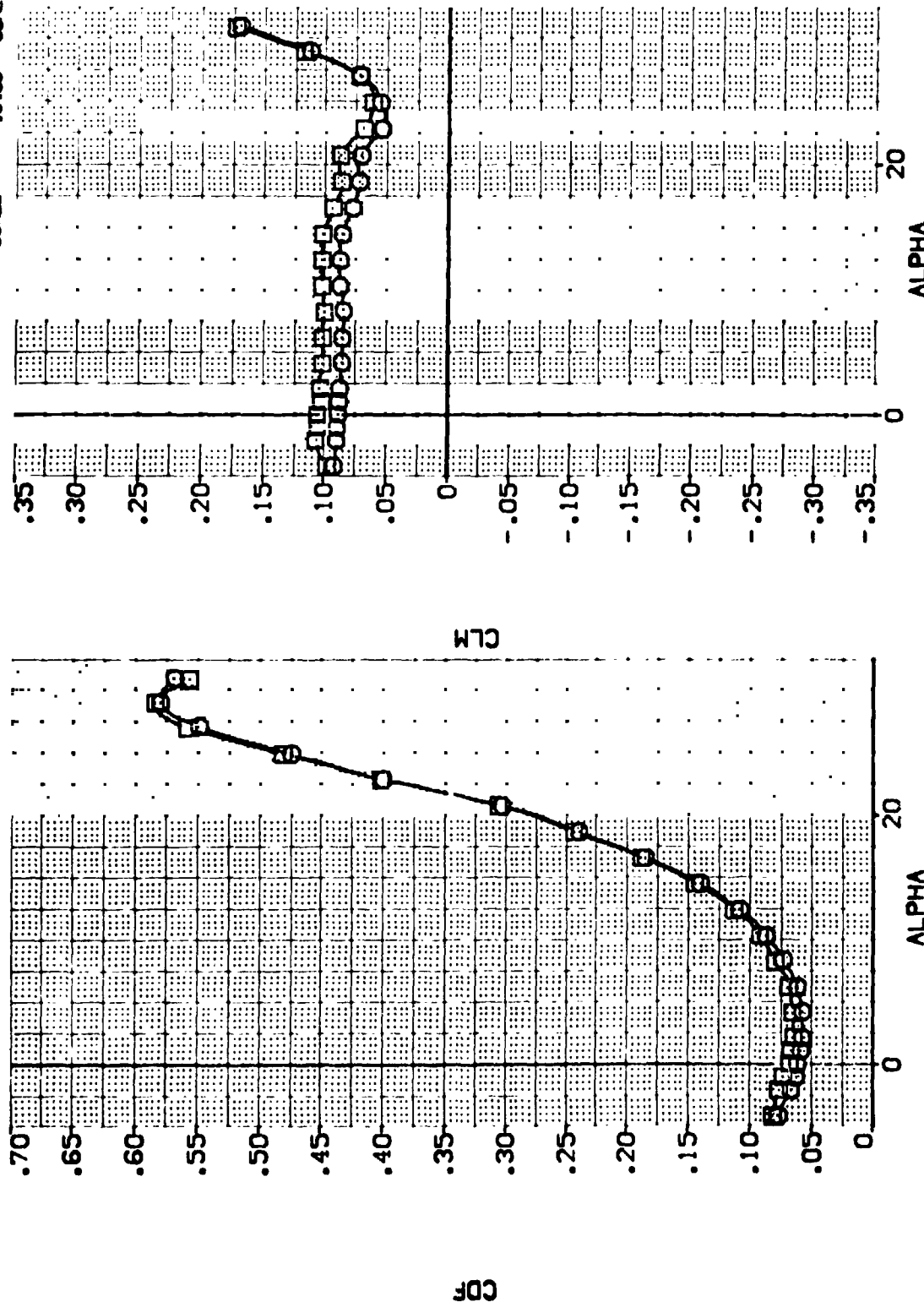


FIG 22 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 85, RUDDER = 0 - LONGITUDINAL

(A)MACH = .20

DATA SET SYMBOL: 8
 CONFIGURATION DESCRIPTION: 0A110 85C11F125S1V124E40V18R15C28
 0A110 85C11F125S1V124E40V21R15C28

ELEVON .000 AILRON .000 RUDDER .000 SPEEDBRK 85.000
 .000 .000 .000 85.000
 REFERENCE INFORMATION
 SREF 4.4119 SQ.FT. INO-ES
 LREF 19.2259 INO-ES
 BREF 37.9359 INO-ES
 XMRP 43.5874 INO-ES
 YMRP .0000 INO-ES
 ZMRP 15.1875 INO-ES
 SCALE .0405 SCALE

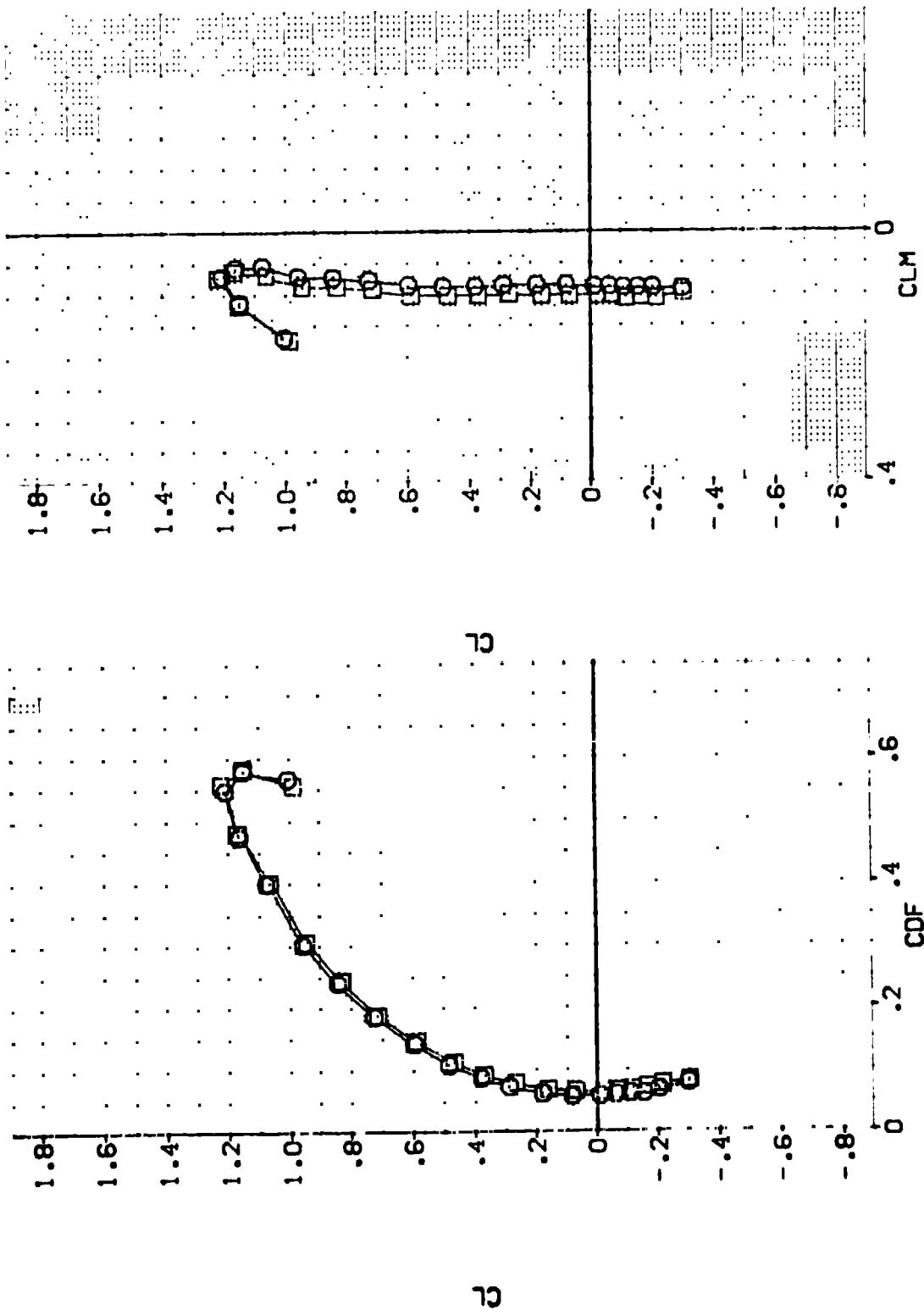


FIG 22 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 85, RUDDER = 0 - LONGITUDINAL

(A)MACH = .20

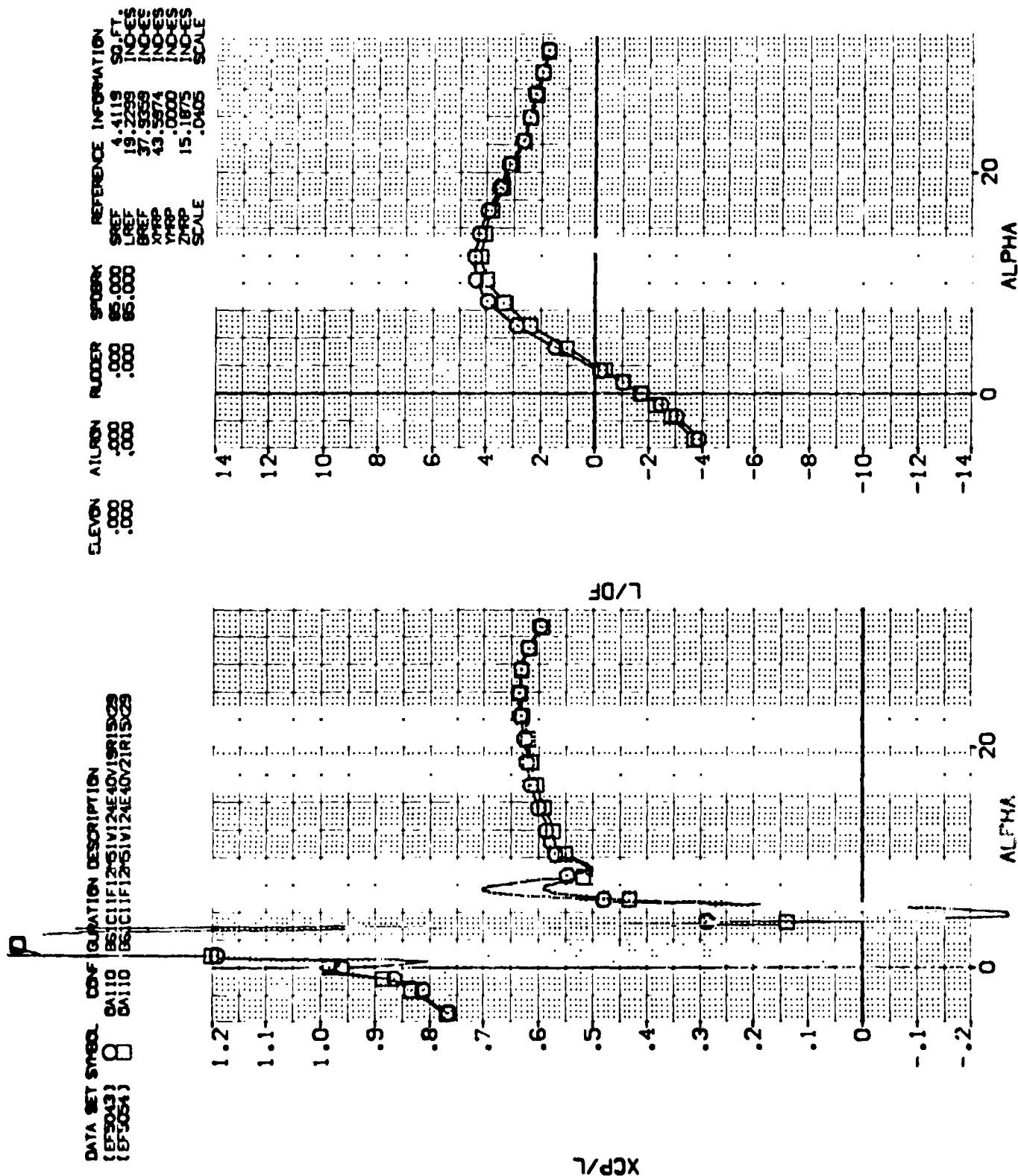


FIG 22 EFFECT OF SPEEDBRAKE BASE. SPEEDBRK = 85, RUDDER = 0 - LONGITUDINAL

(A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (AF3044) 0110 861C11F12761V124E40V19R15C28
 (AF3053) 0110 861C11F12761V124E40V21R15C28

ALPHA RUDDER SPD BRK
 10.000 -000 85.000
 10.000 -000 85.000

REFERENCE INFORMATION
 SREF 4.4119 50. FT.
 LREF 19.2299 INCHES
 BREF 37.9359 INCHES
 X-REF 43.5974 INCHES
 Y-REF .0000 INCHES
 Z-REF 15.1875 INCHES
 SCALE .0405 SCALE

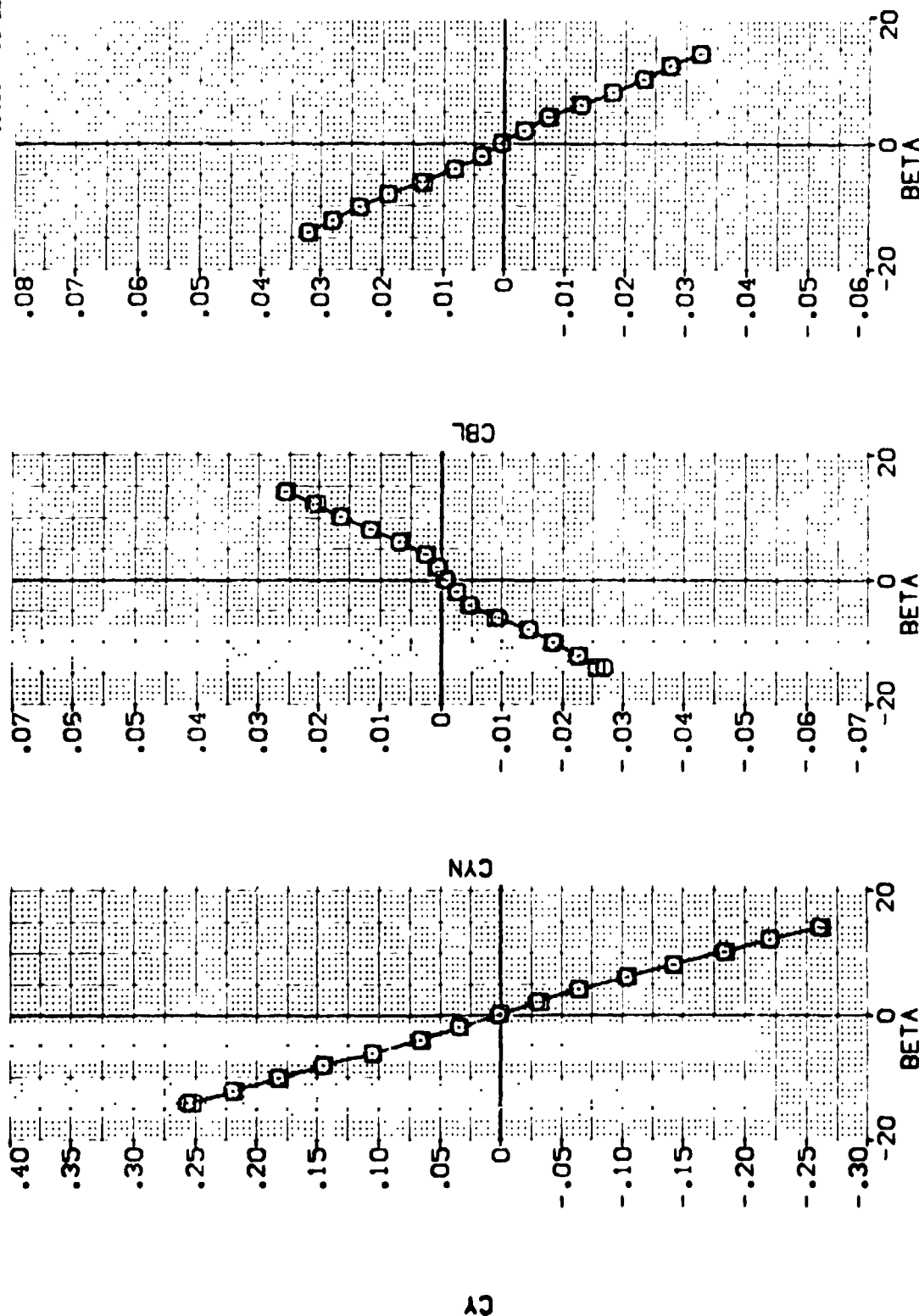


FIG 23 EFFECT OF SPEEDBRAKE BASE, SPD BRK = 85, ALPHA = 10
 (A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 { 1P3052 } 0 0A110 881C11F12V31V12N40V21R15C28
 { 1P3053 } 0 0A110 881C11F12V31V12N40V21R15C28

ALPHA RUDDER SPEEDBRK AILRON REFERENCE INFORMATION
 10.000 -20.000 85.000 4.4119 90.FT
 10.000 0.000 85.1720 19.2258 INCHES
 10.000 0.000 85.1720 37.5359 INCHES
 10.000 0.000 85.1720 43.5974 INCHES
 10.000 0.000 85.1720 15.1875 INCHES
 10.000 0.000 85.1720 .0403 SCALE

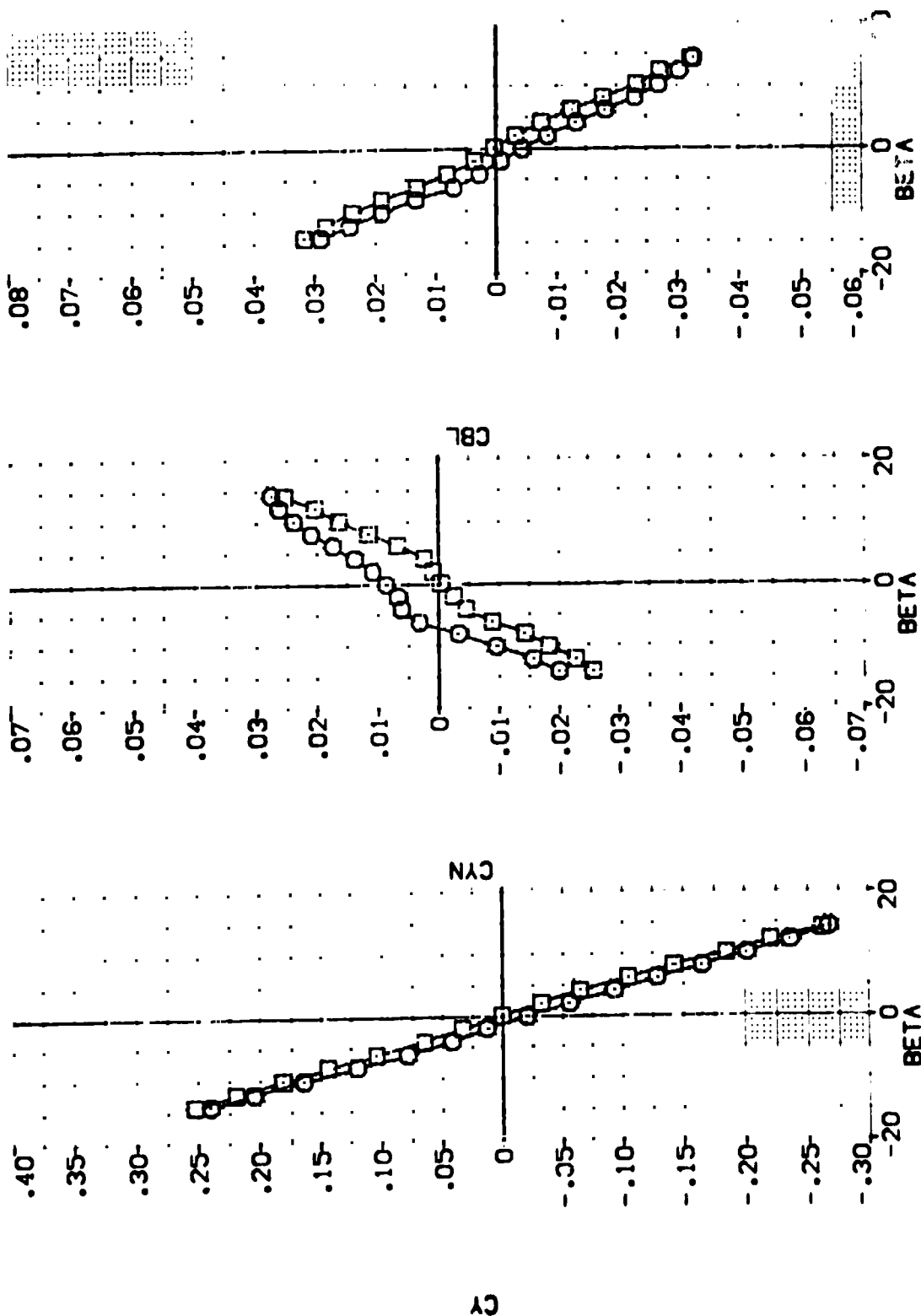


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPD8RK = 85 DEG.

(A)MACH = .20

(DF5052)

0A110 B61C11F12M51W124E40V21R15X29

PARAMETRIC VALUES			DATA SOURCE			REFERENCE INFORMATION		
BETA	MACH	ALPHA	RUDDER	DATASET	RUDDER	SREF	SO.FT.	NO-ES
-14.000	.200	.000	-20.000	DF5052	.000	19.2299	19.2299	NO-ES
-12.000	.000	.000				37.9359	37.9359	NO-ES
-10.000	.000	.000				43.5974	43.5974	NO-ES
-8.000	.000	.000				15.1875	15.1875	NO-ES
-6.000	.000	.000				.0405	.0405	SCALE

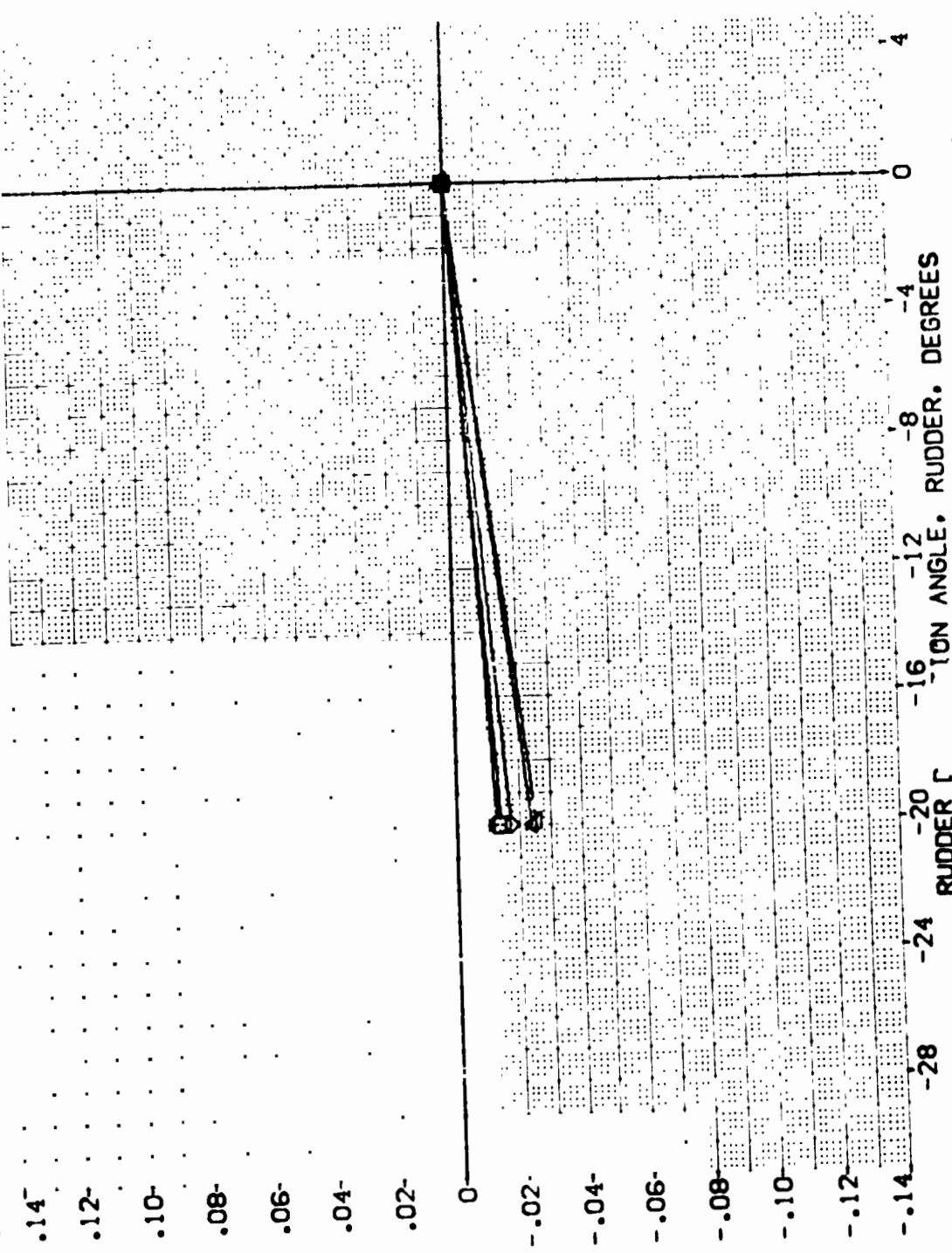


FIG 24 RUDDER EFFECTIVENESS, C. WAKE BASE SEALED, SPDBRK = 85 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF5052)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○		-4.000	MACH	.200	ALPHA	10.000	DATASET	REF	83.471
□		-2.000	ELEVON	.000	ALTRON	.000	DF5052	REF	19.2259
◇		.000	SPDRK	85.000	BDFLAP	-12.000		REF	37.5359
△		2.000						REF	43.5574
▽		4.000						REF	.0000
								REF	15.1875
								REF	.0405
								REF	SCALE

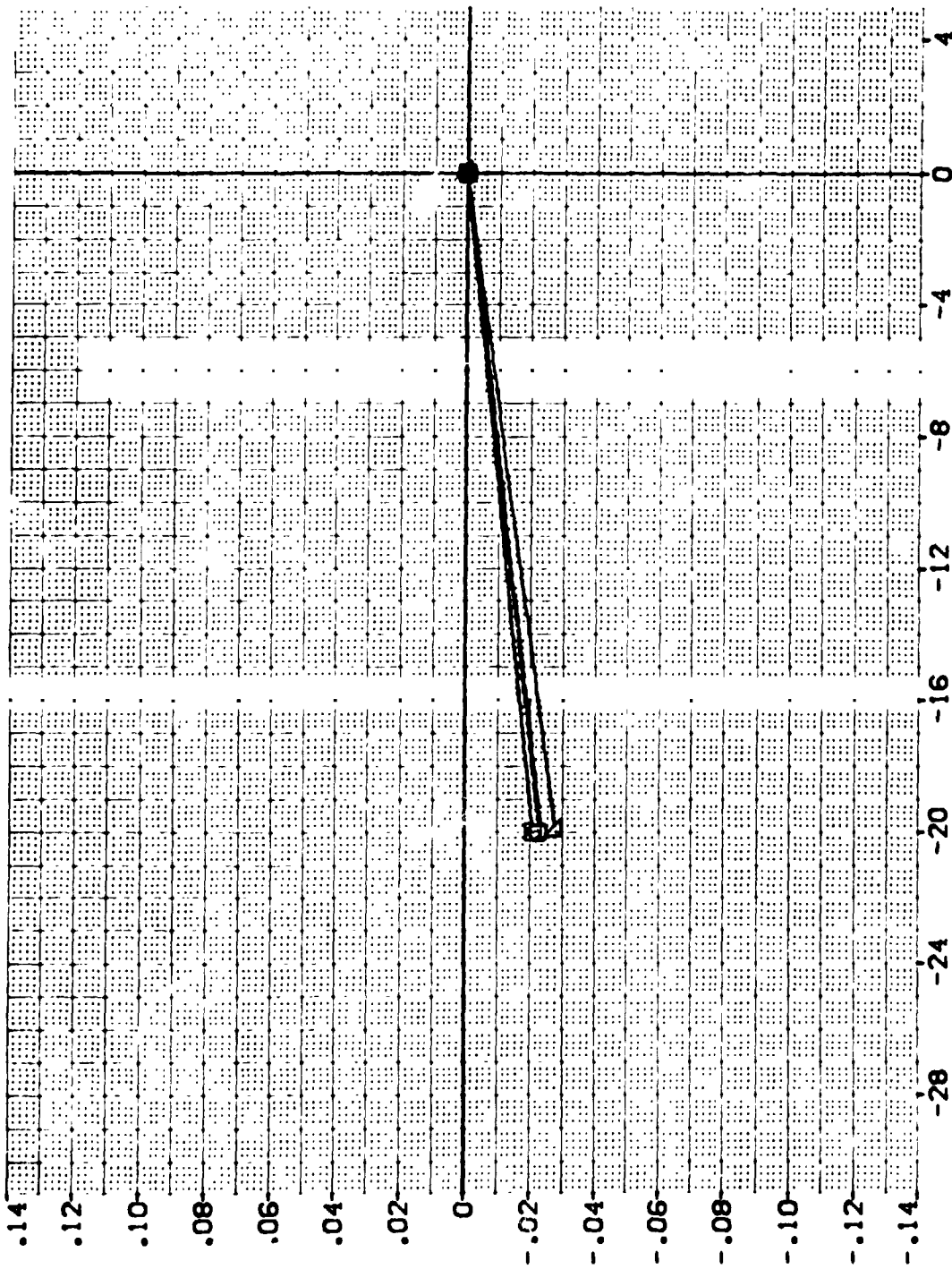


FIG 24 RUDDER EFFECTIVENESS, SPEEDRAKE BASE SEALED, SPDRK = 85 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF5052)

SYMBOL	BETA	MACH	ELEVON	SPDBRK	PARAMETRIC VALUES	DATA SOURCE	RUDDER	DATA SET	RUDDER	SREF	REFERENCE INFORMATION
○	6.000				.200 ALPHA	10.000	10.000	DF5052	.000	4.4119	SO.FT.
□	8.000				.000 AILRON	.000	DF5052	DF5053	.000	19.7299	INO-ES
◇	10.000				85.000 BOFLAP	-12.000				37.9359	INO-ES
△	12.000									43.5974	INO-ES
▽	14.000									0.0000	INO-ES
										15.1875	INO-ES
										.0405	SCALE

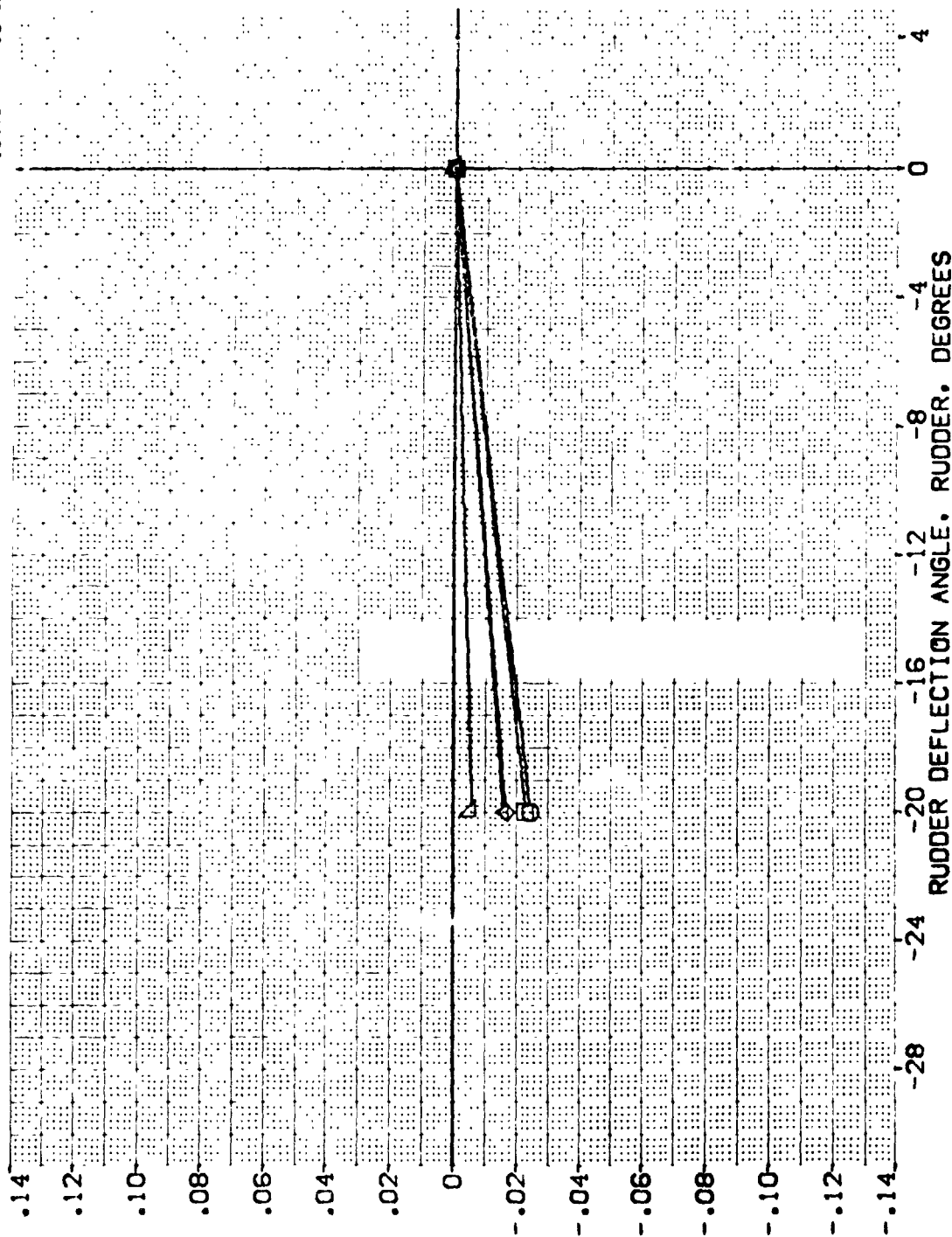


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDBRK = 85 DEG.

(DF5052)

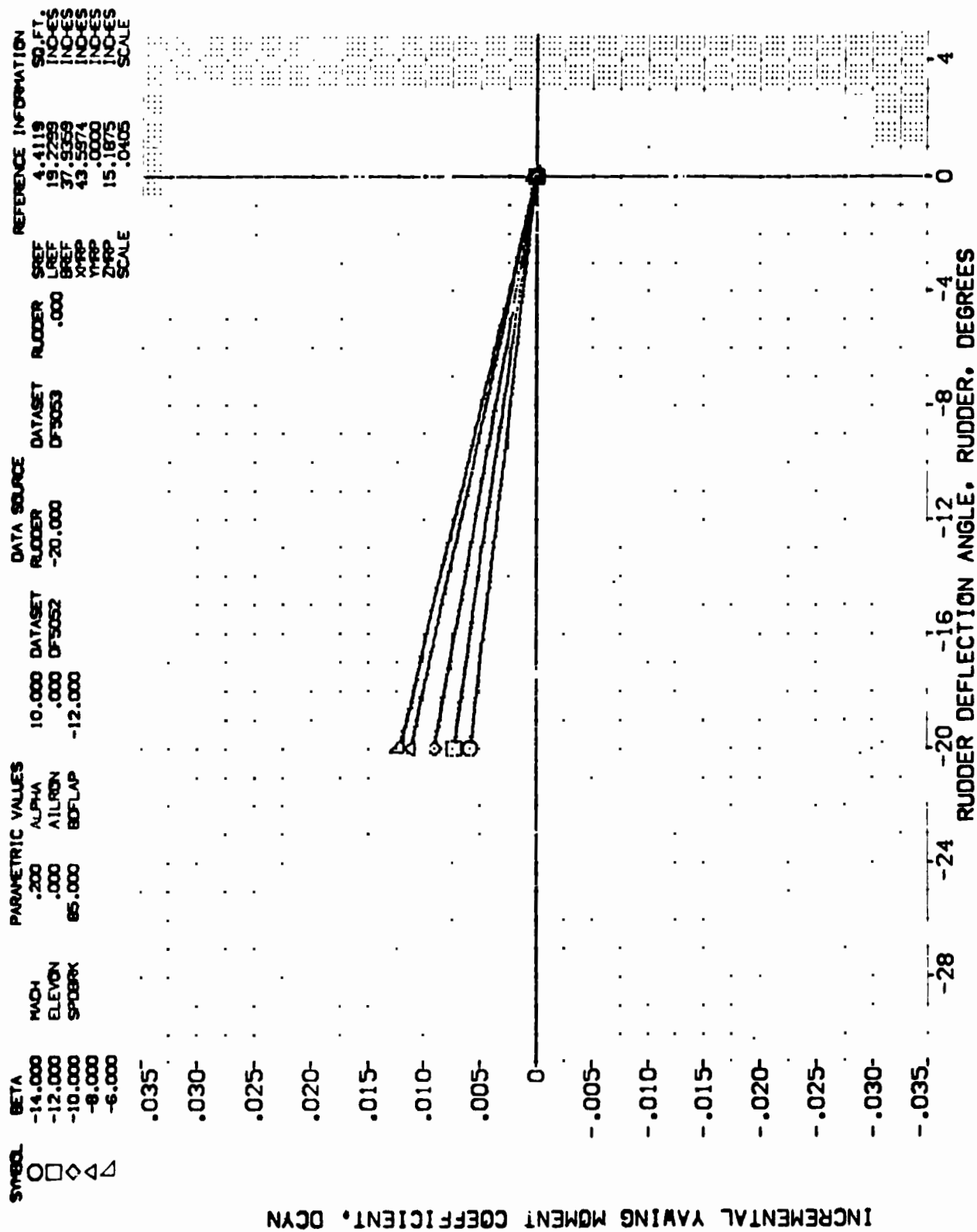


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPD8RK = 85 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF5052)

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA		MACH	.200	ALPHA	.000	DATASET	DF5052	RUDDER	.000	SREF	4.4119
		ELEVON	.000	AILRON	.000	RUDDER	DF5052	REF	.000	REF	19.2286
		SPOBRK	85.000	BOFLAP	-12.000	REF	DF5052	REF	.000	REF	37.5358
						REF	DF5052	REF	.000	REF	43.5974
						REF	DF5052	REF	.000	REF	15.1875
						REF	DF5052	REF	.000	REF	.0405
						REF	DF5052	REF	.000	REF	SCALE

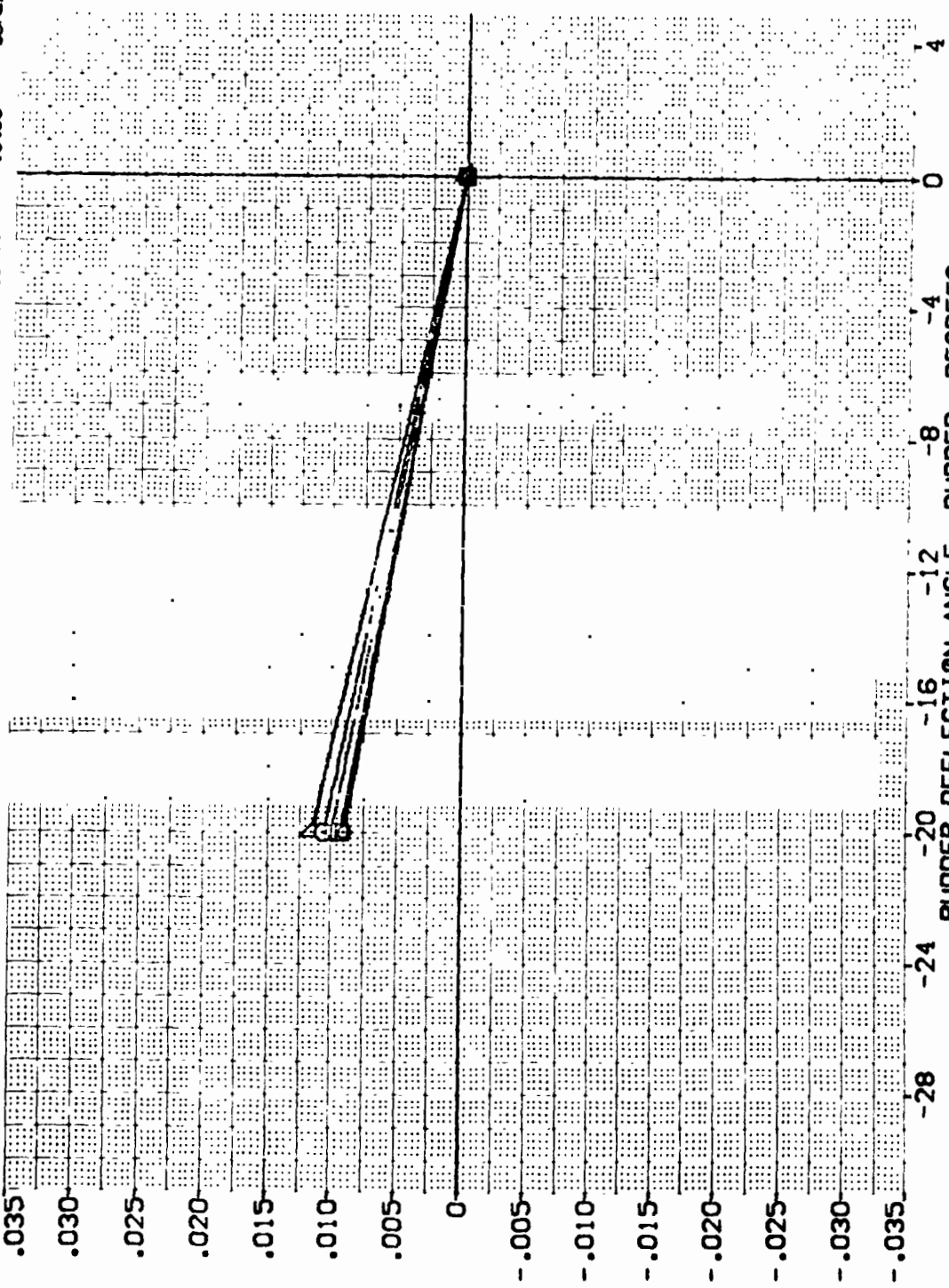


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPOBRK = 85 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF5052)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
MACH	.200	ALPHA	10.000	DATASET	DF5052
ELEVON	.000	AILRON	.000	RUDDER	.000
SPDBRK	85.000	BDFLAP	-12.000	SREF	4.4119
				LREF	19.2269
				BREF	37.9559
				YPRP	43.9974
				ZPRP	.0000
				SCALE	15.1875
					SCALE

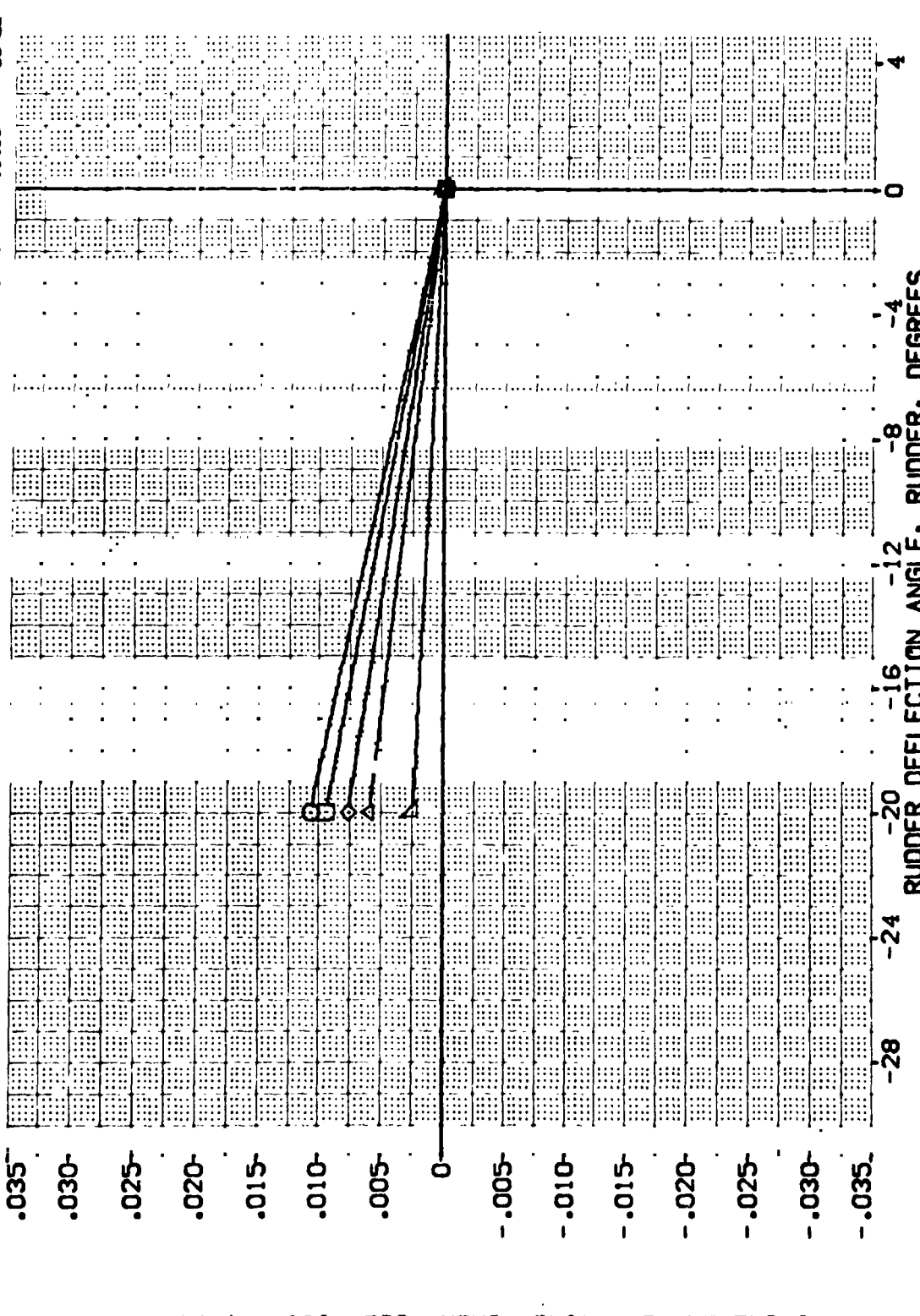


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDBRK = 85 DEG.

(DF5052)

0A110 B61C11F12M51W124E40V21R15X29

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	-14.000	MACH	.200	ALPHA	10.000	DATASET	RUDDER	SREF	50.FT.
□	-12.000	ELEVON	.000	AILRON	.000	DF5053	.000	LRPF	INCHES
◇	-10.000	SPDRK	85.000	BOFLAP	-12.000			BRPF	INCHES
△	-8.000							VRPF	INCHES
▽	-6.000							WARP	INCHES
								SCALE	SCALE

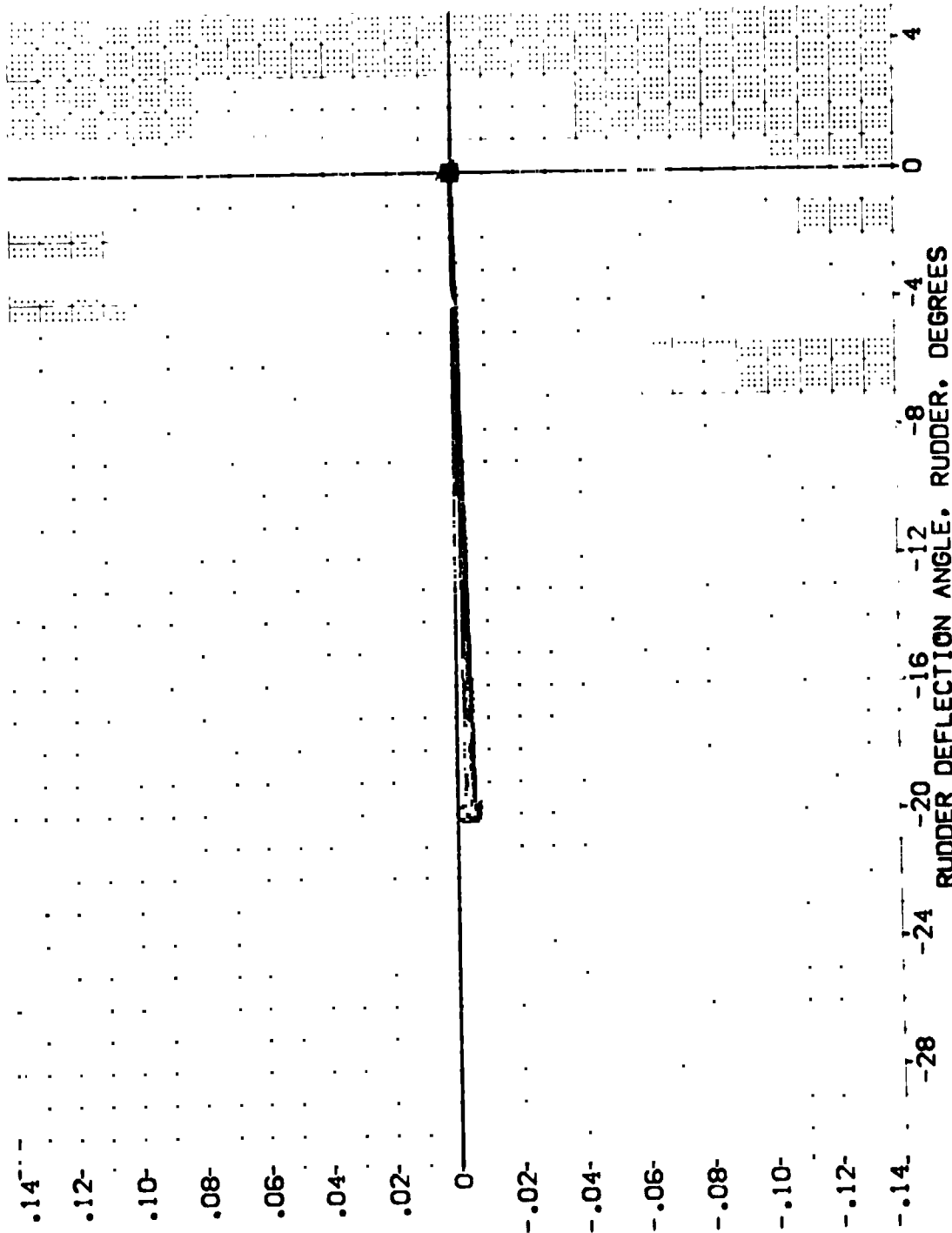


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDRK = 85 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF5052)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	DATASET	RUDDER	BREF	REFERENCE INFORMATION
○	-4.000	ELEVON	.200 ALPHA	RUDDER	DF5053	.000	REF	4.4119 SO.FT.
□	-2.000	SPOBRK	.000 AILRON	-20.000			UREF	19.2299 INO-ES
◇	.000		85.000 BOFLAP				BREF	37.9259 INO-ES
△	2.000						XMRP	43.5974 INO-ES
▽	4.000						YMRP	.0000 INO-ES
							ZMRP	15.1875 INO-ES
							SCALE	.0405 SCALE

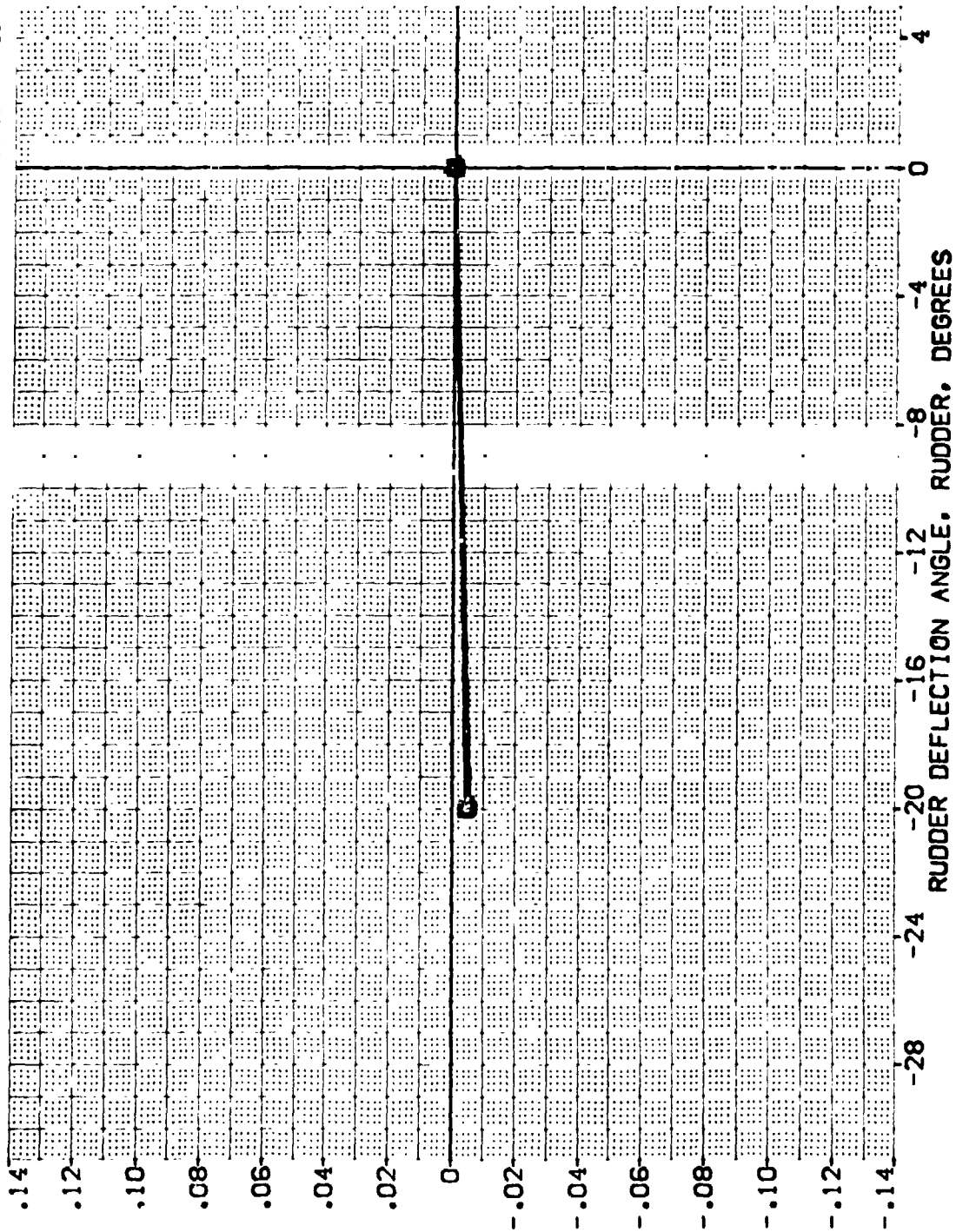


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPOBRK = 85 DEG.

(DF5052)

0A110 861C11F12M51W124E40V21R15X29

SYMBOL
□
◇
△

BETA
6.000
8.000
10.000
12.000
14.000

MACH
ELEVON
SPOBRK

PARAMETRIC VALUES
.200 ALPHA
.000 AILTRON
85.000 BDFLAP

DATA SOURCE
RUDDER
-20.000
10.000 DATASET
.000 DF5052
-12.000

RUDDER
.000

SREF
LREF
BREF
XMRP
YMRP
ZMRP
SCALE

REFERENCE INFORMATION
4.4119 SO.FT.
19.2298 INO-ES
37.9258 INO-ES
43.5574 INO-ES
.0000 INO-ES
15.1875 INO-ES
.0405 SCALE

INCREMENTAL ROLLING MOMENT COEFFICIENT, DCBL

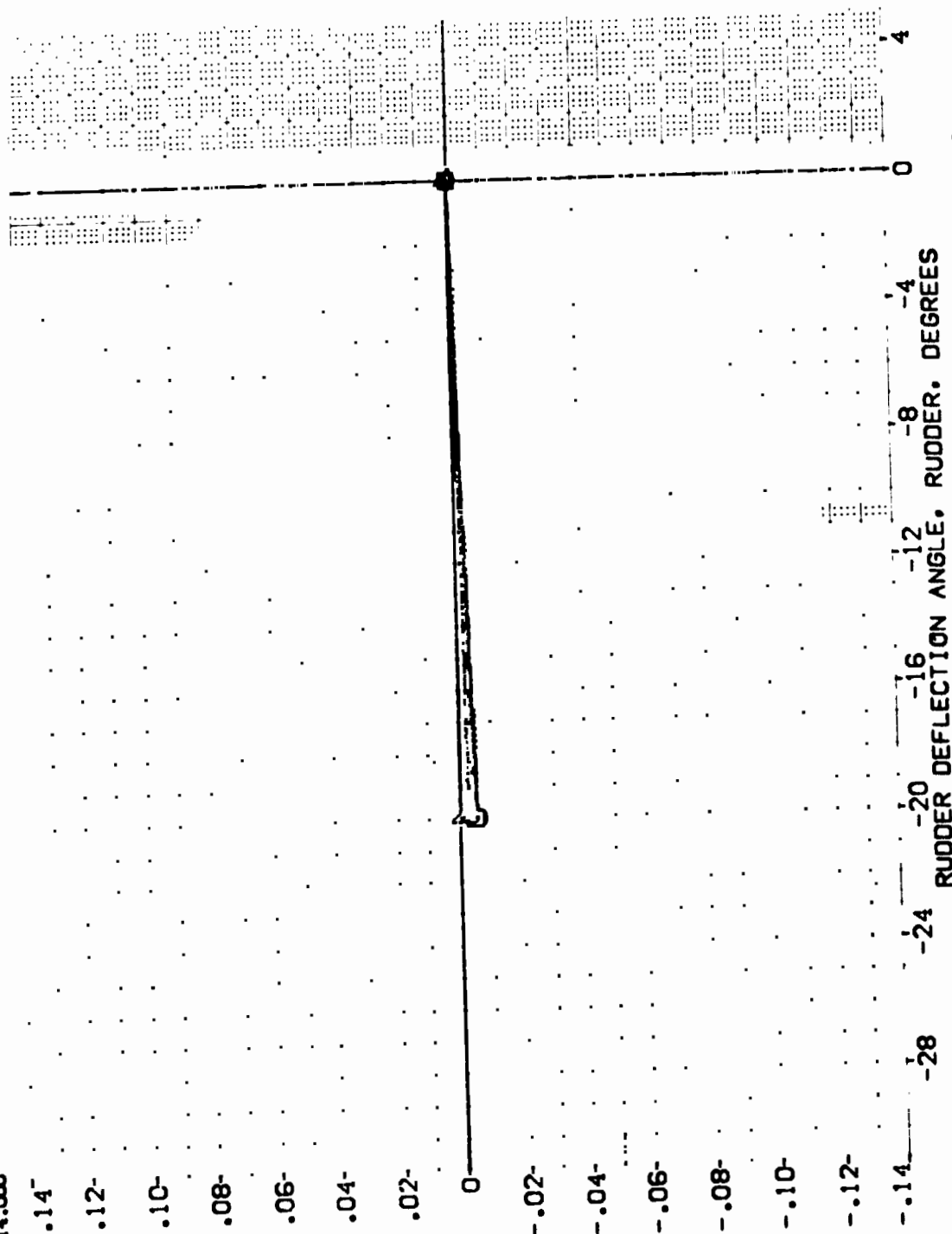


FIG 24 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPOBRK = 85 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (E3011) 0110 861C11F1251V124E40V19R150C3
 (E3057) 0110 861C11F1251V124E40V21R150C3

ELEVON AILRON RUDDER SPEEDBRK
 .000 .000 .000 25.000
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SQ.FT. 4.4119
 SREF 19.2739 INCHES
 LREF 37.5359 INCHES
 BREF 43.5974 INCHES
 XMRP .0000 INCHES
 YMRP .0000 INCHES
 ZMRP 15.1875 INCHES
 SCALE .0405

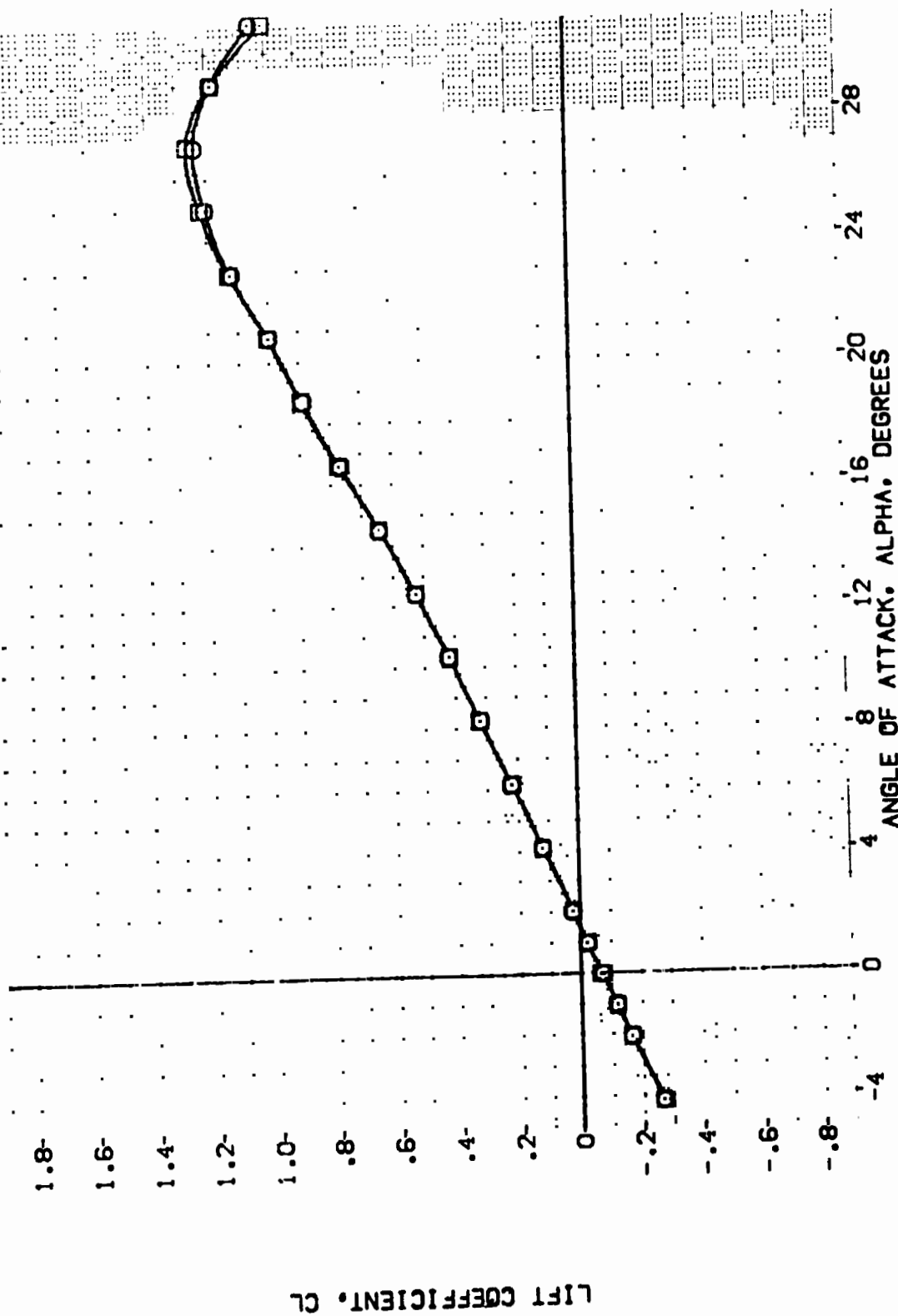


FIG 25 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 25 DEG., RUDDER = 0 - LONGITUDINAL
 (A)MACH = .20

DATA SET 9780. CONFIGURATION DESCRIPTION
 {EP3011} 0A110 BS1C1F1261V124E40V1SR15C25
 {EP3057} 0A110 BS1C1F1261V124E40V21R15C25

ELEVON .000 AILRON .000 RUDDER .000 SPEEDBRK 25.000
 REFERENCE INFORMATION
 GREF 4.4119 SQ.FT. INO-ES
 LREF 19.2259 INO-ES
 BREF 37.8759 INO-ES
 YARP 43.5574 INO-ES
 ZARP .0000 INO-ES
 SCALE 15.1875 INO-ES
 SCALE .0405

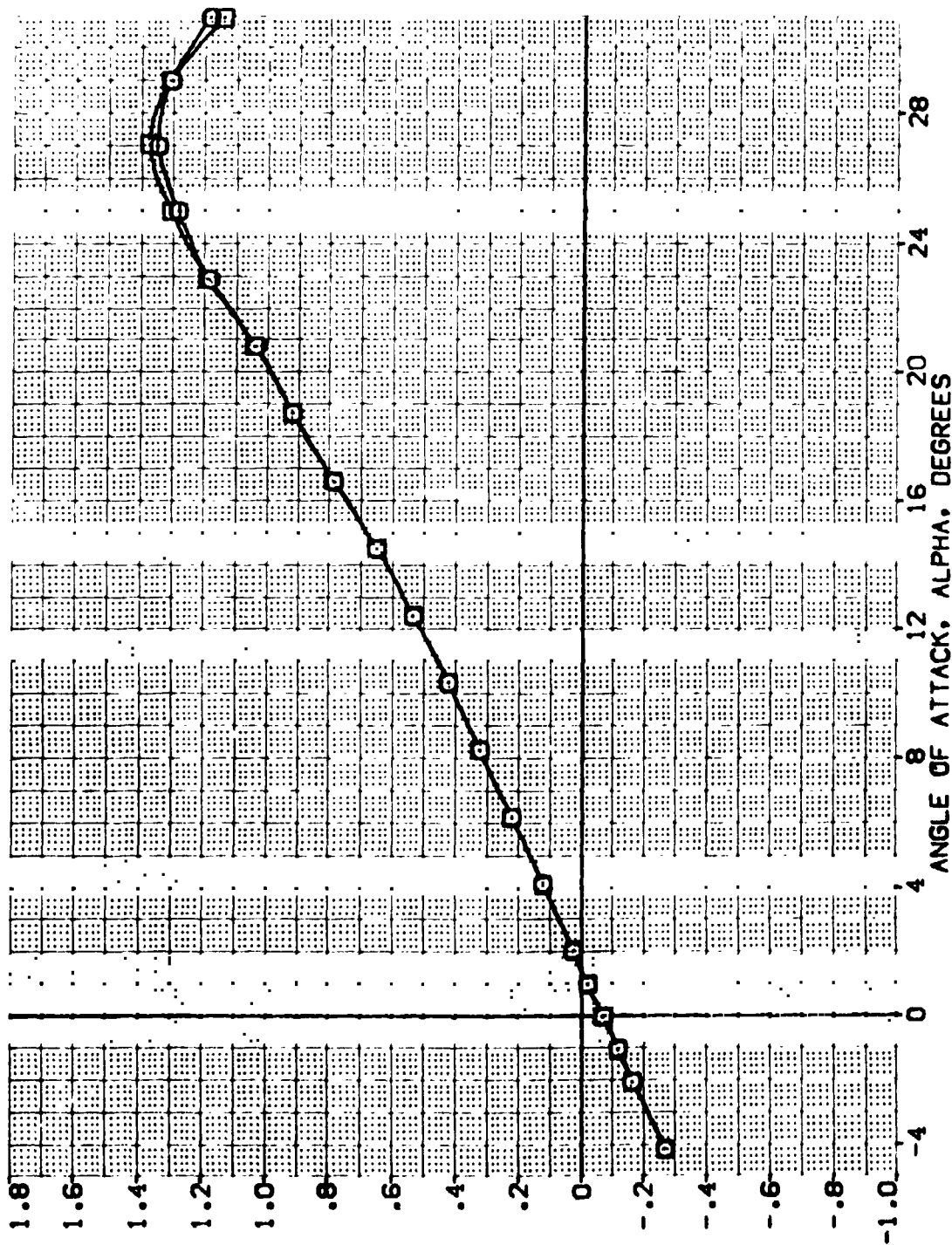


FIG 25 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 25 DEG., RUDDER = 0 - LONGITUDINAL
 (A)MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {E73011} 8 8A110 8S1C11F12S1V12N40V18R1S028
 {E73057} 8 8A110 8S1C11F12S1V12N40V21R1S025

ELEVON AILRON RUDDER SPOBRK REFERENCE INFORMATION
 .000 .000 .000 25.000 90.FT.
 .000 .000 .000 25.000 INCHES
 XREF 37.9359 INCHES
 YREF 43.5974 INCHES
 ZREF 15.1873 INCHES
 SCALE .0405

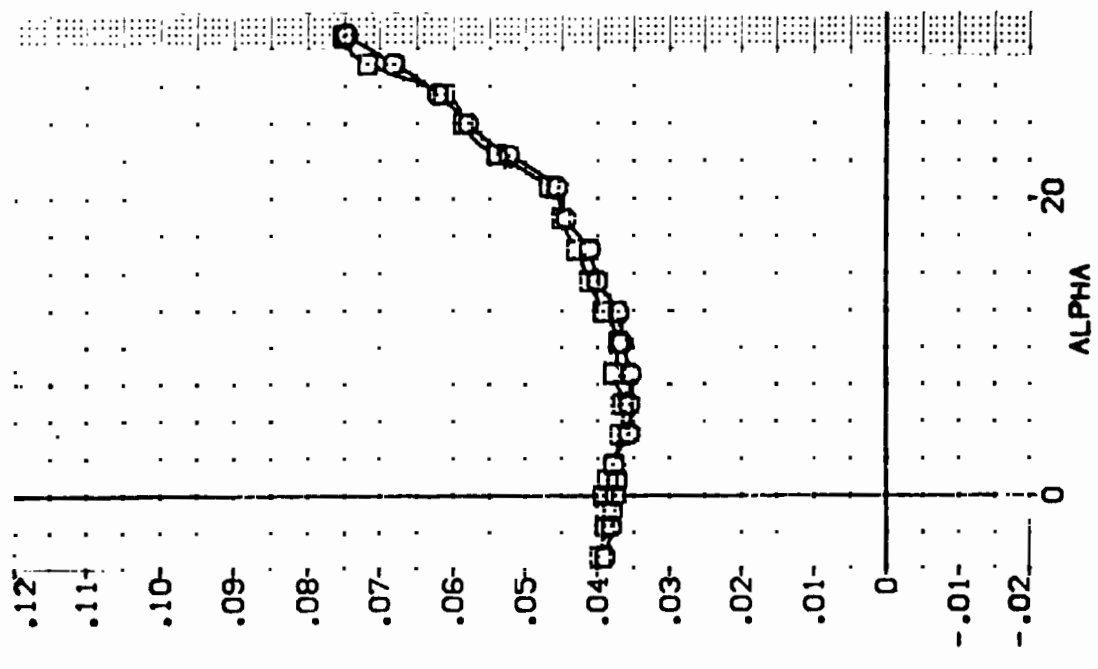
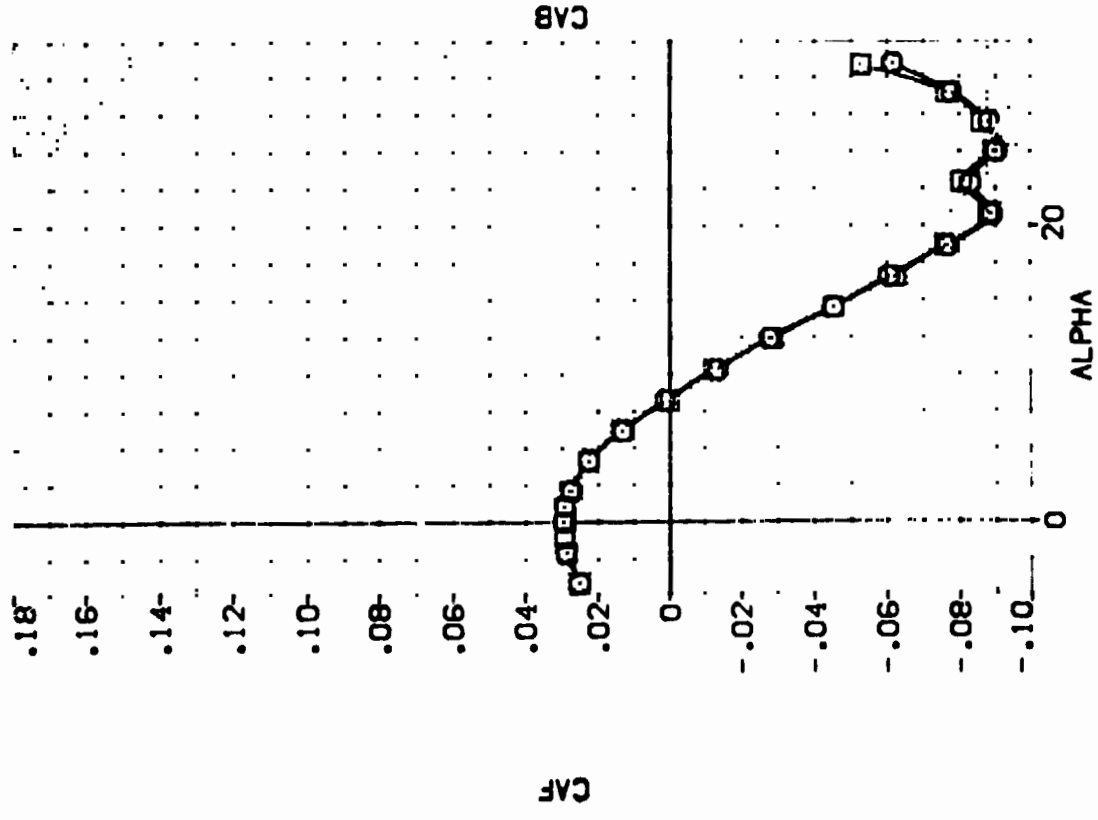


FIG 25 EFFECT OF SPEEDBRAKE BASE, SPOBRK = 25 DEG., RUDDER = 0 - LONGITUDINAL
 (A)MACH = .20 PAGE 167

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {E5011} 0A110 001C11F1261V12AE40V18R15C08
 {E5057} 0A110 001C11F1261V12AE40V21R15C08

ELEVON AILRON RUDDER SPEEDBRK
 .000 .000 .000 25.000
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 SQ.FT
 LREF 19.2259 INO-ES
 BREF 37.9359 INO-ES
 XREF 43.5674 INO-ES
 YREF 15.0000 INO-ES
 ZREF 15.1875 INO-ES
 SCALE .0405 SCALE

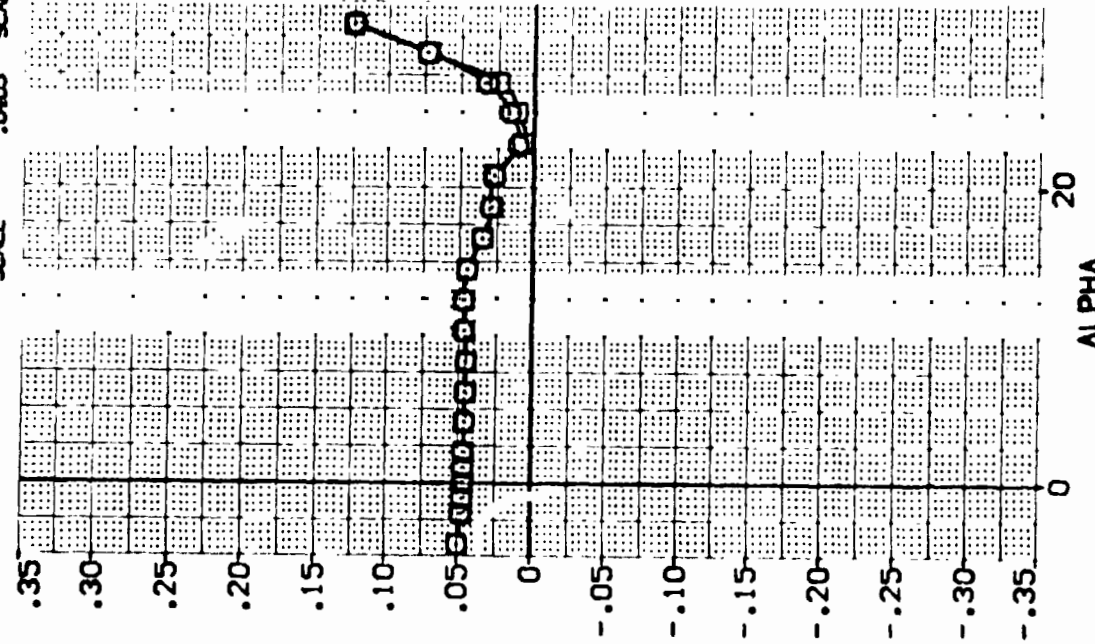
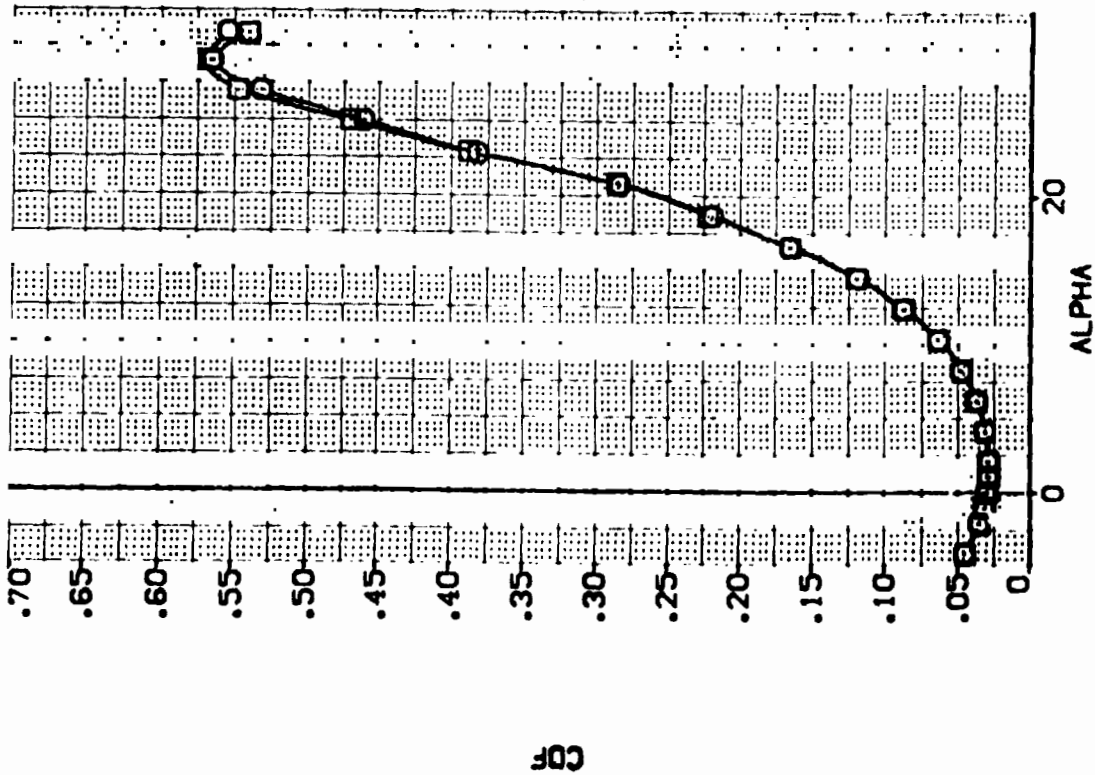


FIG 25 EFFECT OF SPEEDBRAKE BASE, SPEEDBRK = 25 DEG., RUDDER = 0 - LONGITUDINAL
 (A)MACH = .20

CONVULSION DESCRIPTION

ELEVON	AILERON	RUDDER	SPARSK
.000	.000	.000	25.000
.000	.000	.000	25.000

EF	4.419	50 FT.
EF	19.258	INOES
EF	37.358	INOES
PP	43.5874	INOES
PP	.0000	INOES
PP	15.1875	INOES
PP	.0402	SCALE

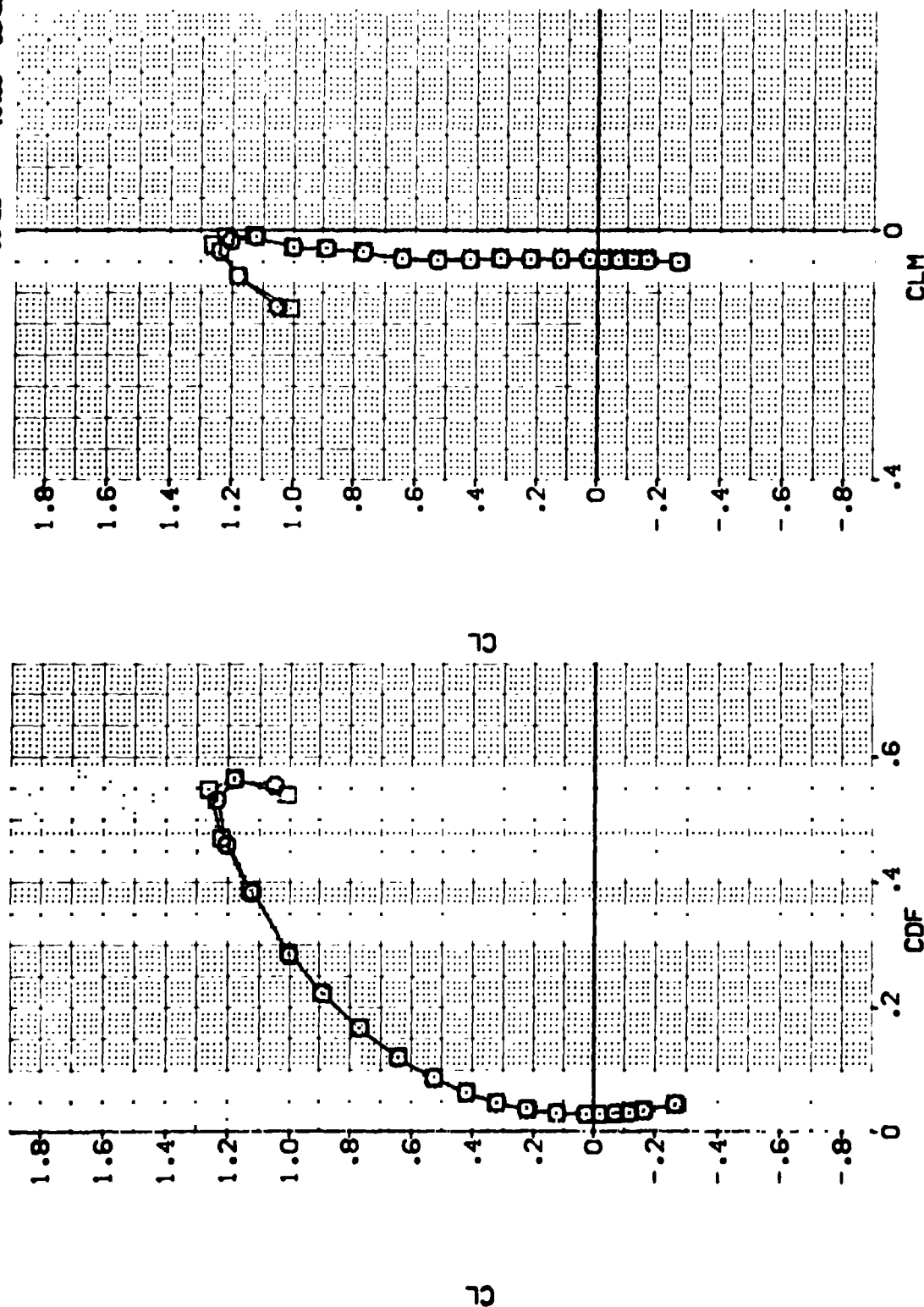


FIG 25 EFFECT OF SPEEDBRAKE BASE. SPOBRK = 25 DEG., RUDDER = 0 - LONGITUDINAL



DATA SET SYMB. COMP. CALCULATION DESCRIPTION
{B3011} 01110 BASIC1F12P61V12E40V18R18C28
{B3057} 01110 BASIC1F12P61V12E40V21R15C28

ELEVON .000 .000 .000
AILRON .000 .000 .000
RUDDER .000 .000 .000
SPOBRK 25.000 25.000 25.000
REFERENCE INFORMATION
SREF 4.4119 50.000
LREF 19.2239 INO-ES
BREF 37.9359 INO-ES
XREF 43.5974 INO-ES
YREF .0000 INO-ES
ZREF 15.1875 INO-ES
SCALE .0405

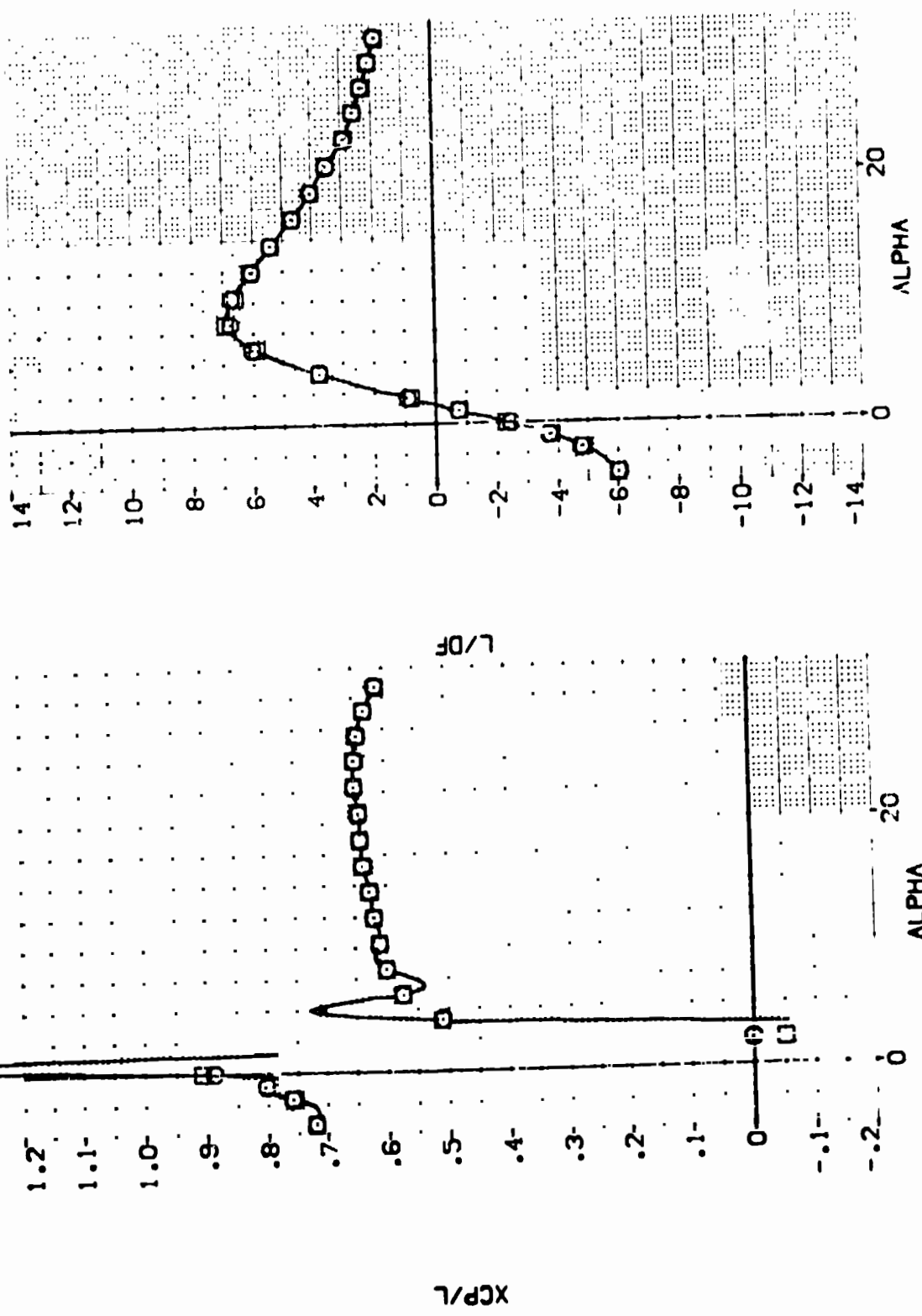


FIG 25 EFFECT OF SPEEDBRAKE BASE, SPOBRK = 25 DEG., RUDDER = 0 - LONGITUDINAL
(A)MACH = .20

ALPHA	FLUOR	SPOBKG	ATLORN	REFERENCE INFORMATION	90-FT.
12,000	-000	25,000	-000	SREF	IN-OES
10,000	-000	25,000	-000	LBET	IN-OES
				BREF	IN-OES
				YR4P	IN-OES
				YR4P	IN-OES
				SCALE	SCALE

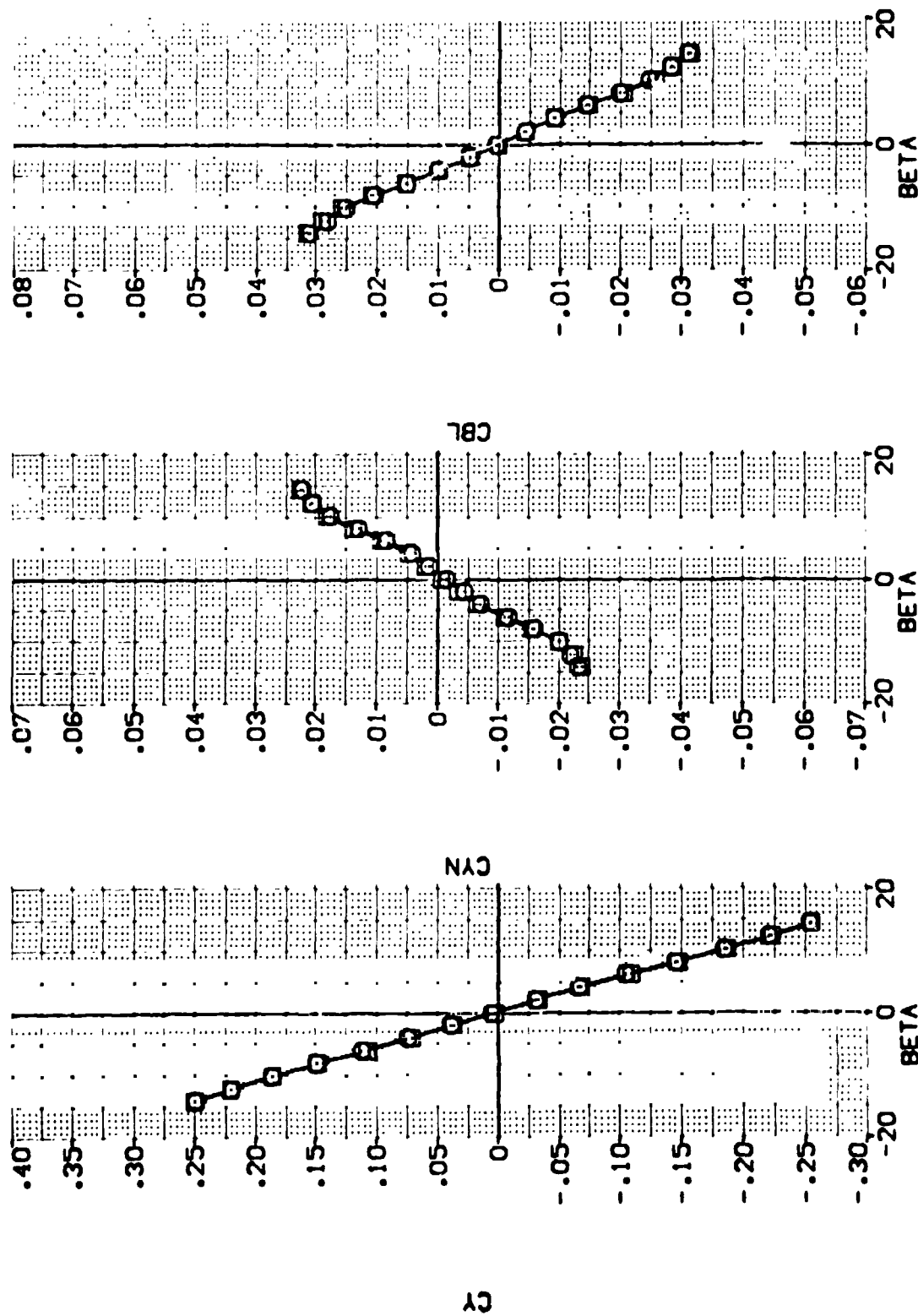


FIG 26 EFFECT OF SPEEDBRAKE BASE, SPD BRK = 25 DEG., ALPHA = 10 DEG.

$$C_A \text{ MACH} = .20$$

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 { RF3055 } 0A110 BSIC11F12-31V124E40V21R15X28
 { RF3056 } 0A110 BSIC11F12-31V124E40V21R15X28

ALPHA RUDDER SPOBRK
 10.000 -20.000 25.000
 10.000 25.000

REFERENCE INFORMATION
 SREF 4.4119 50. FT.
 LREF 19.2299 INCHES
 BREF 37.9359 INCHES
 YMRP 43.5974 INCHES
 ZMRP .0000 INCHES
 SCALE 15.1875 INCHES
 .0405 SCALE

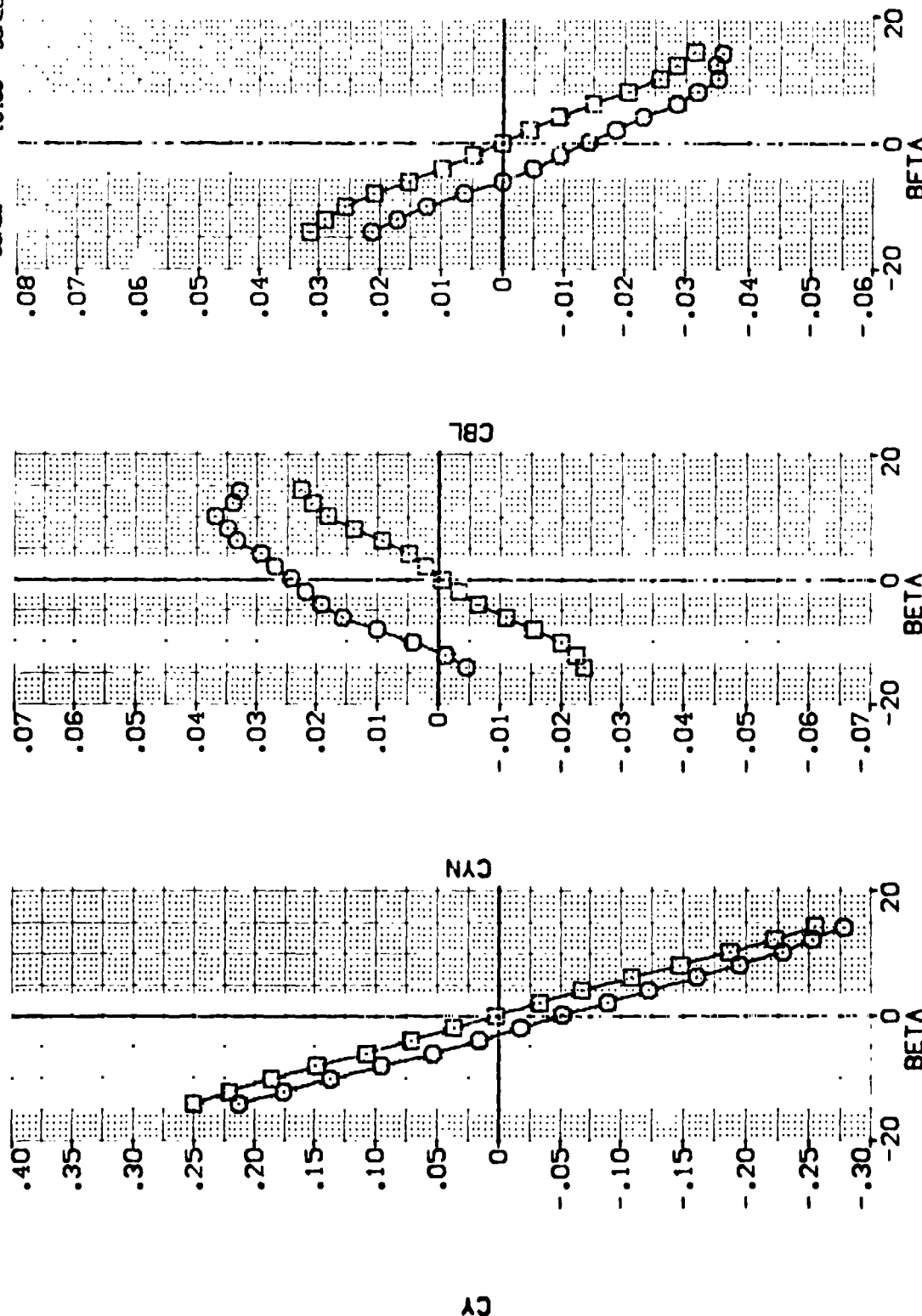


FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPOBRK = 25 DEG.

(A)MACH = .20

0A110 B61C11F12M51W124E40V21R15X29

(DF5055)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	RUDDER	DATASET	RUDDER	SREF	REFERENCE INFORMATION
○	-14.000		.200 ALPHA	10.000	RUDDER	DF5055	.000	4.4119	SQ.FT.
□	-12.000		.000 AILRON	.000	RUDDER	DF5055	.000	19.2259	INO-ES
◇	-10.000		25.000 BOFLAP	-12.000	RUDDER	DF5055	.000	37.9359	INO-ES
△	-8.000				RUDDER	DF5055	.000	43.5974	INO-ES
▽	-6.000				RUDDER	DF5055	.000	15.1875	INO-ES
					RUDDER	DF5055	.000	.0405	SCALE

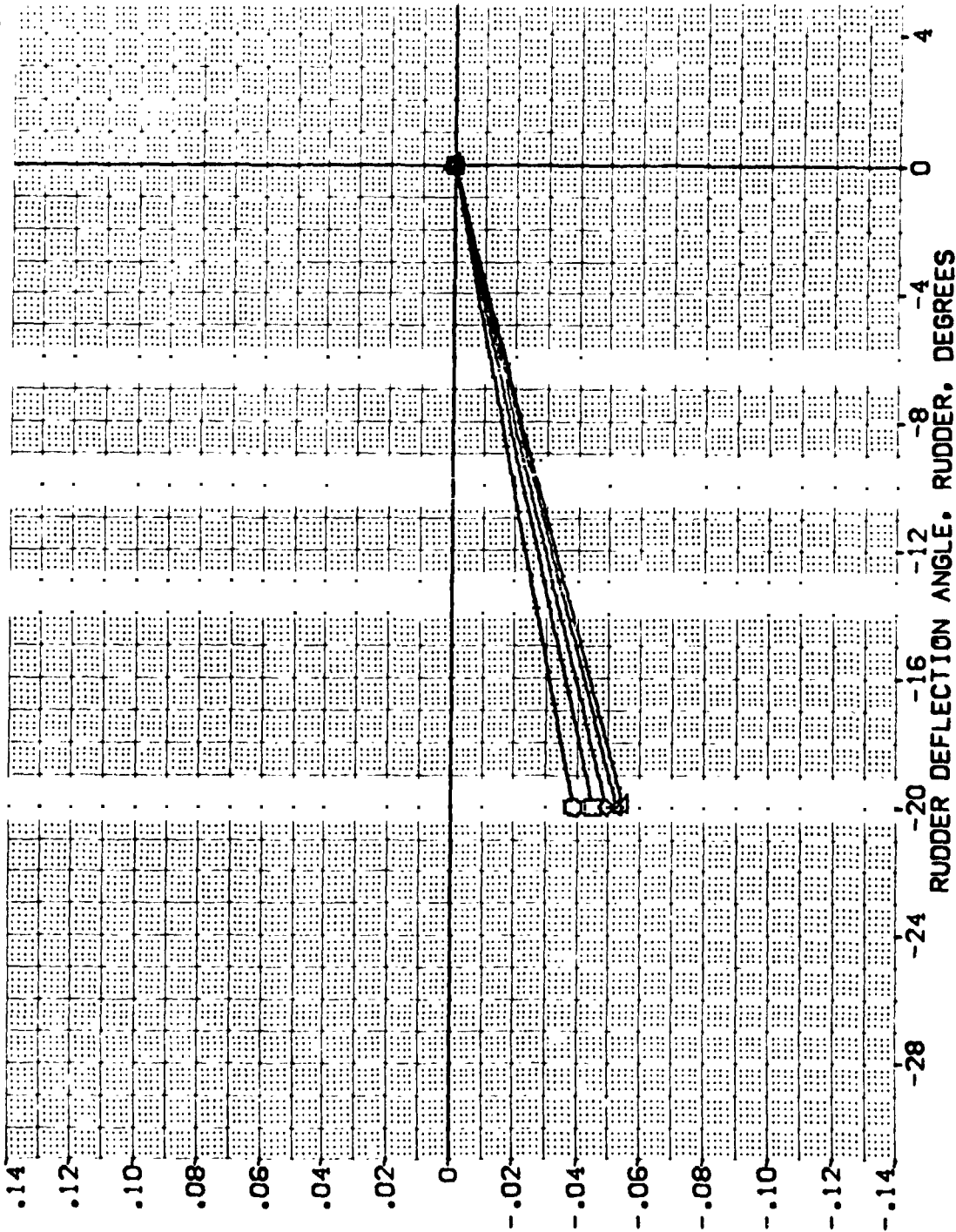


FIG 27 RUDDER EFFECTIVENESS. SPEEDBRAKE BASE SEALED, SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF5055)

SYMBOL				PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
□	◇	△	▽	BETA	MACH	ALPHA	RUDDER	10.000	DF5055	RUDDER	DF5056	SREF	4.4119	SG.FT.	
				-1.000	ELEVON	.200		.000				LREF	19.2299	INCHES	
				-2.000	SPDBRK	.000		-17.000				BREF	37.9359	INCHES	
				.000		25.000						XREF	43.5974	INCHES	
				2.000								YREF	.0000	INCHES	
				4.000								ZREF	15.1875	INCHES	
												SCALE	.0405	SCALE	

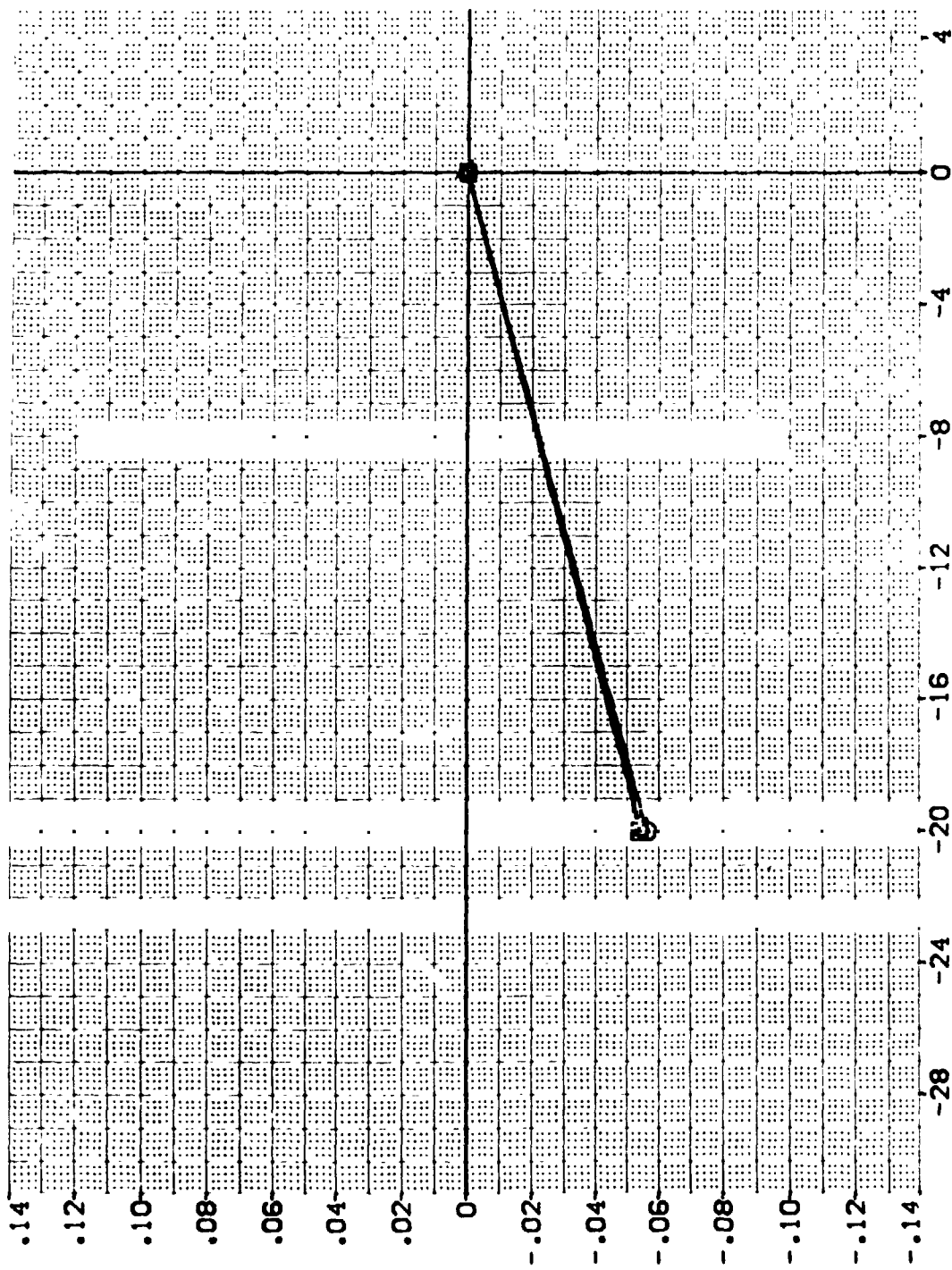


FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V21R15X29 (DF50F5)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
BETA	MACH	10.000	RUDDER	SREF	50.FT.
8.000	.200	.000	.000	LREF	19.2259
8.000	.000	DF5055	DF5056	BREF	37.9358
10.000	25.000	-12.000		XTRP	43.5974
12.000	BOFLAP			YTRP	.0000
14.000				ZTRP	15.1875
				SCALE	.0405

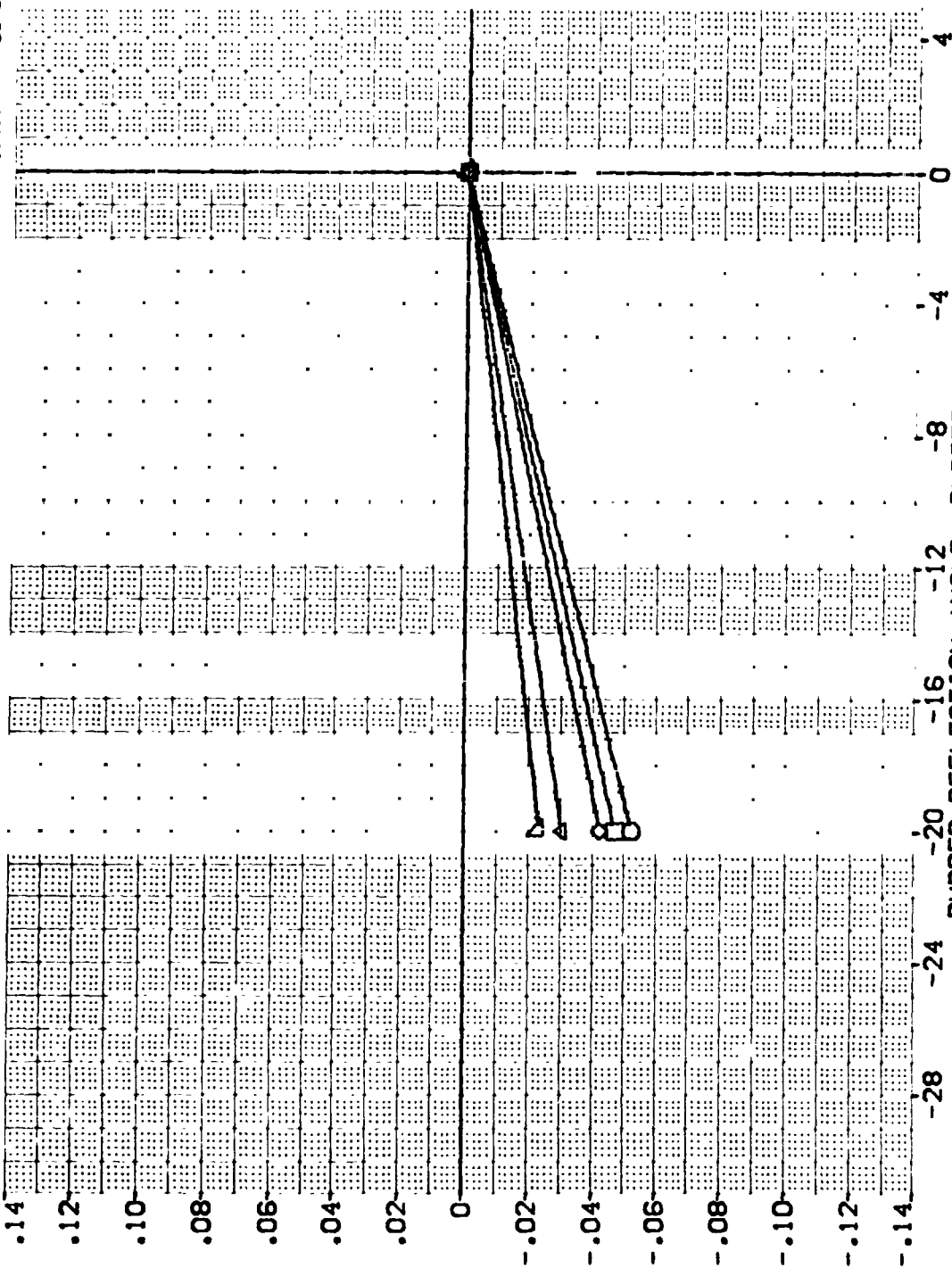


FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPD3RK = 25 DEG.

(DF5055)

0A110 B61C11F12M51W124E40V21R15X29

SYMBOL	BETA	MACH	PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION		
○	-14.000		.200	ALPHA	10.000	RUDDER	DATASET	SREF	50. FT.	
□	-12.000		.000	AILRON	.000	-20.000	DF5055	LREF	IN-ES	
◇	-10.000		25.000	BDFLAP	-12.000			XREF	IN-ES	
△	-8.000							YREF	IN-ES	
	-6.000							ZREF	IN-ES	
								SCALE	15.1875	
									SCALE	.0405

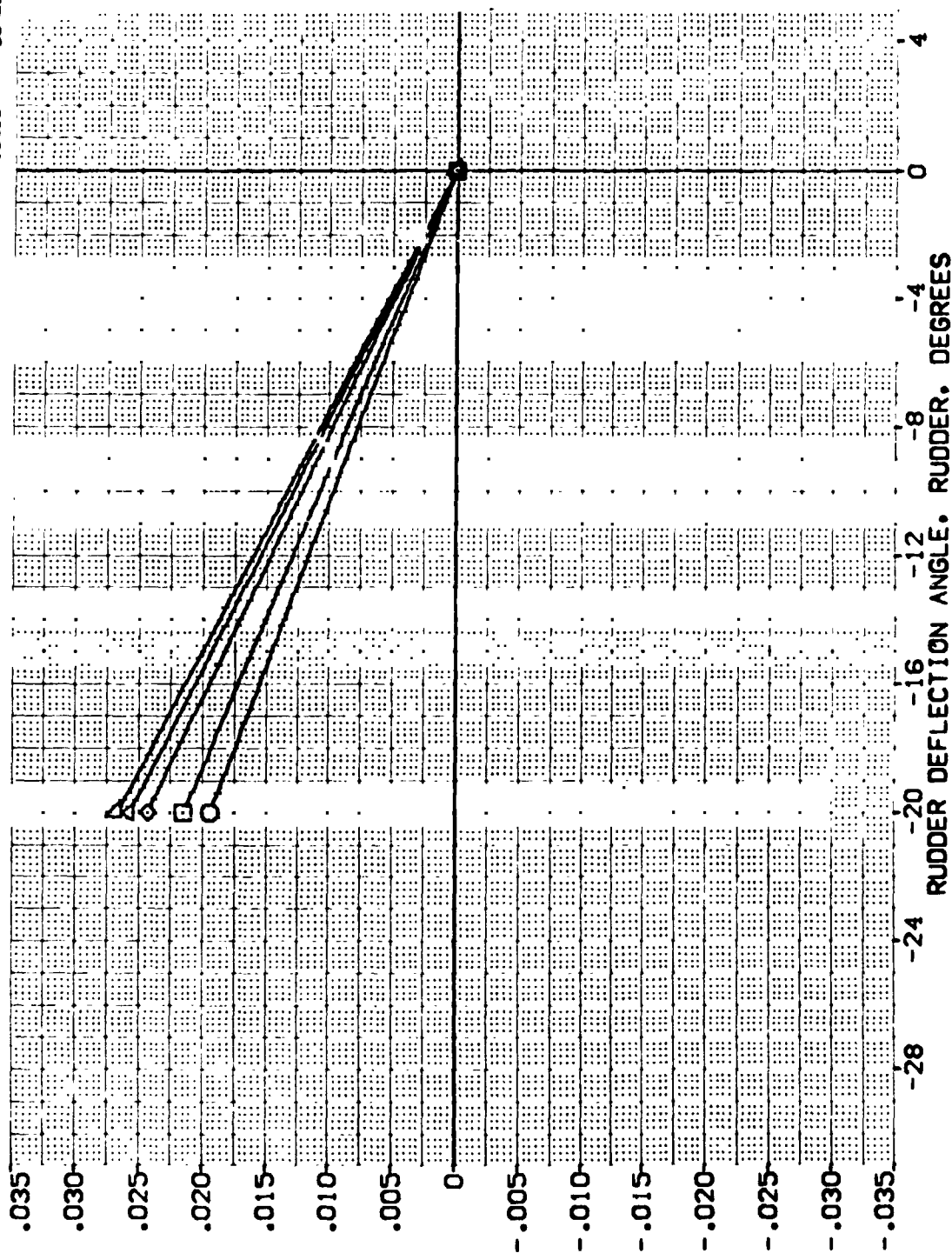


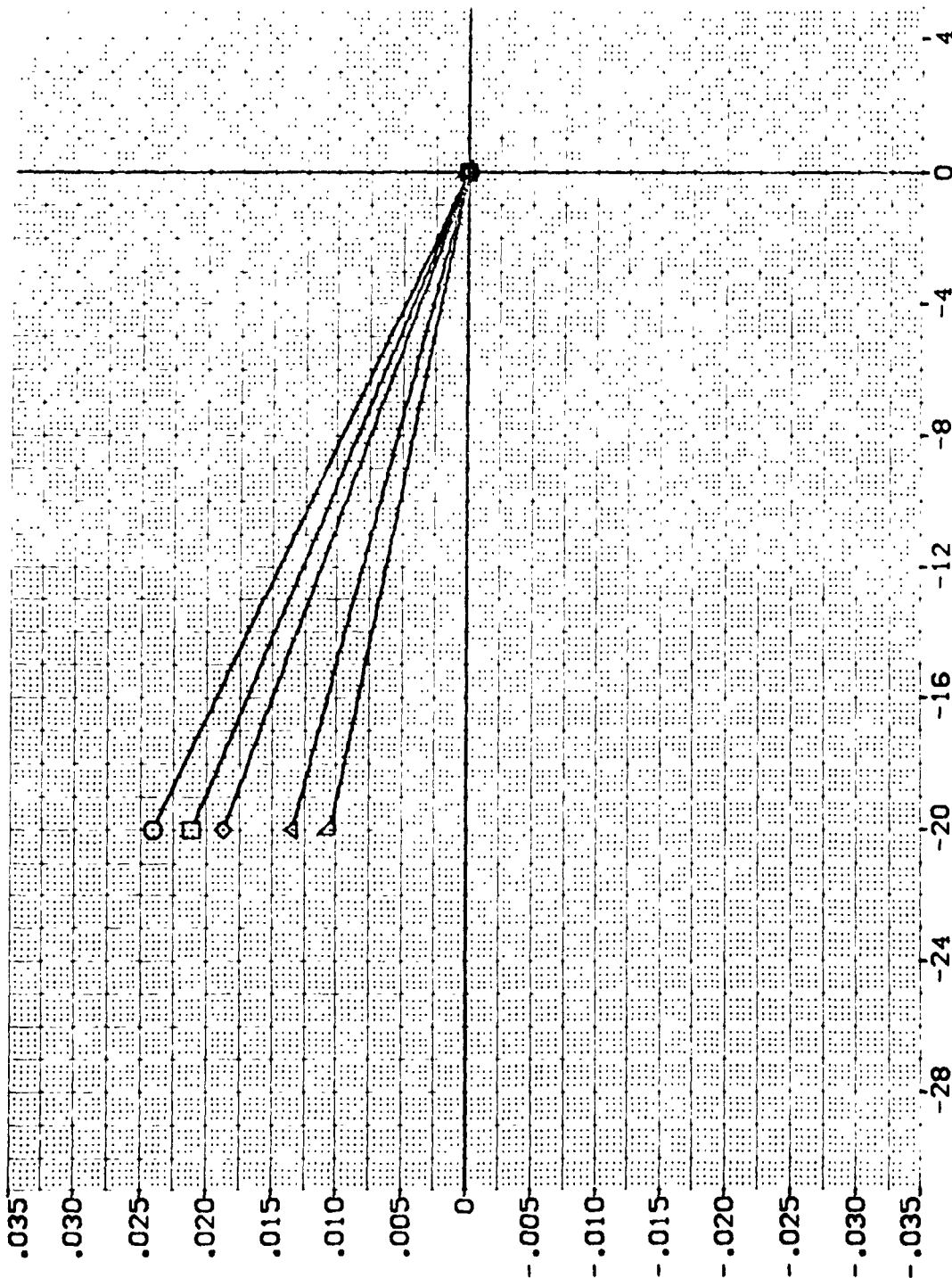
FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDBRK = 20 DEG.



(DF5055)

0A110 B61C11F12M51W124E40V21R15X29

SYMBOL	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
	BETA	MACH	ALPHA	BOFLAP	10.000	DF5055	RUDDER	DF5055	SREF	LRFF	50. FT.	INCHES
○	6.000		.200		.000	DF5055			.000	19.2289	INCHES	
□	8.000		.000		.000	DF5055			.000	37.9359	INCHES	
◇	10.000		.25.000		.000	DF5055			.000	43.5574	INCHES	
△	12.000				.000	DF5055			.000	15.1875	INCHES	
▽	14.000				.000	DF5055			.000	.0405	SCALE	



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FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPD BRK = 25 DEG.



(DF5055)

0A110 861C11F12M51W124E40V21R15X29

PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA	MACH	ALPHA	AILRON	BOFLAP	RUDDER	DF5055	REF	sq.ft.	INCHES
-14.000	.200	.000	25.000	-12.000	.000	DF5055	4.4118	19.2298	37.5359
-12.000	ELEVON	.000	AILRON	BOFLAP	.000	DF5055	19.2298	37.5359	43.5974
-10.000	SPDBRK	.000	AILRON	BOFLAP	.000	DF5055	43.5974	10.000	15.1875
-8.000						DF5055	10.000	15.1875	.0405
-6.000						DF5055	15.1875	.0405	

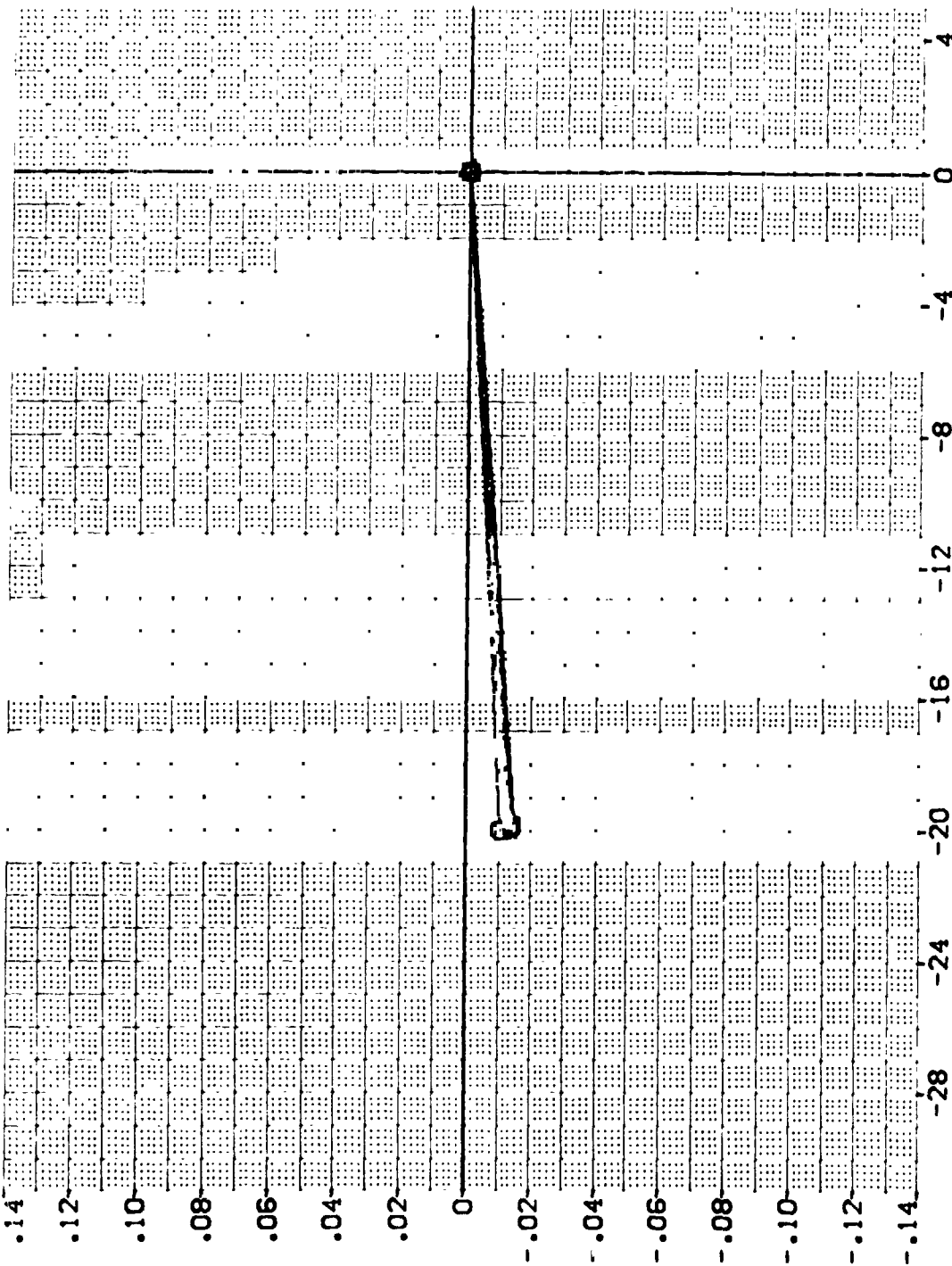


FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDBRK = 25 DEG.

(DF5055)

0A110 B61C11F12M51W124E40V21R15X29

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA	WCH	ALPHA	ALPHA	DATA	RUDDER	DATA	RUDDER	REF	92.FT		
-4.000	ELEVON	.200	.000	10.000	.000	DF5055	.000	REF	4.119	IN-OES	
-2.000	SPDBRK	.000	.000	.000	-20.000	DF5055	.000	REF	19.2258	IN-OES	
2.000		25.000	80FLAP	-12.000				REF	37.5359	IN-OES	
4.000								REF	43.5974	IN-OES	
								REF	15.1875	IN-OES	
								REF	.0405	IN-OES	
								REF		SCALE	

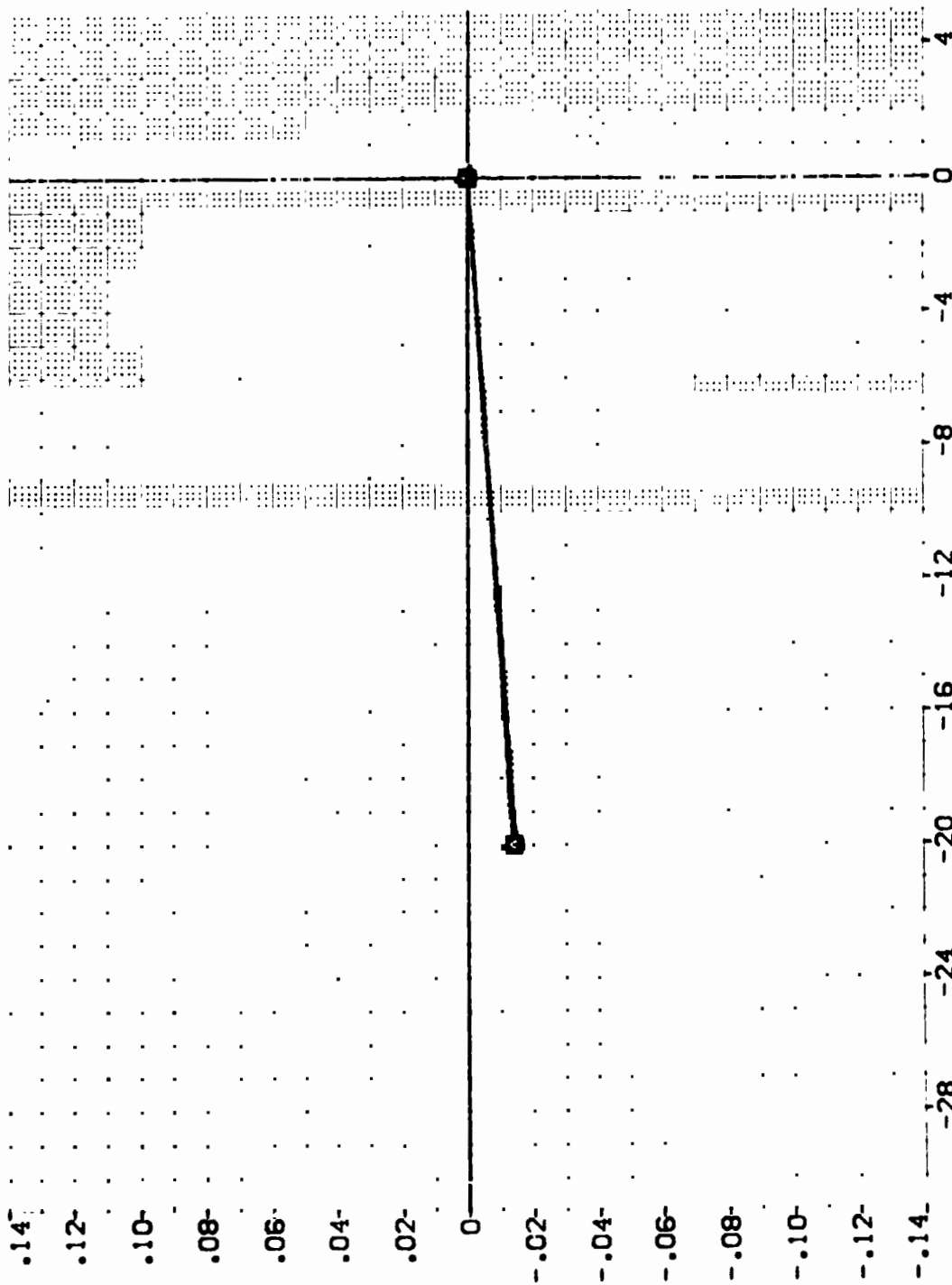


FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPDBRK = 25 DEG.

0A110 861C11F12M51W124E40V21R15X29 (DF5055)
 BETA 6.000 MACH .200 ALPHA 10.000 DATASET 10.000 RUDDER .000 REF 4.4119 80 FT
 8.000 ELEVON .000 ALLISON .000 DF5055 -20.000 REF 19.2289 INO-ES
 10.000 SPD BRK 25.000 80 FLAP -12.000 REF 37.9059 INO-ES
 12.000 14.000 REF 43.5974 INO-ES
 15.1875 INO-ES
 .0405 SCALE

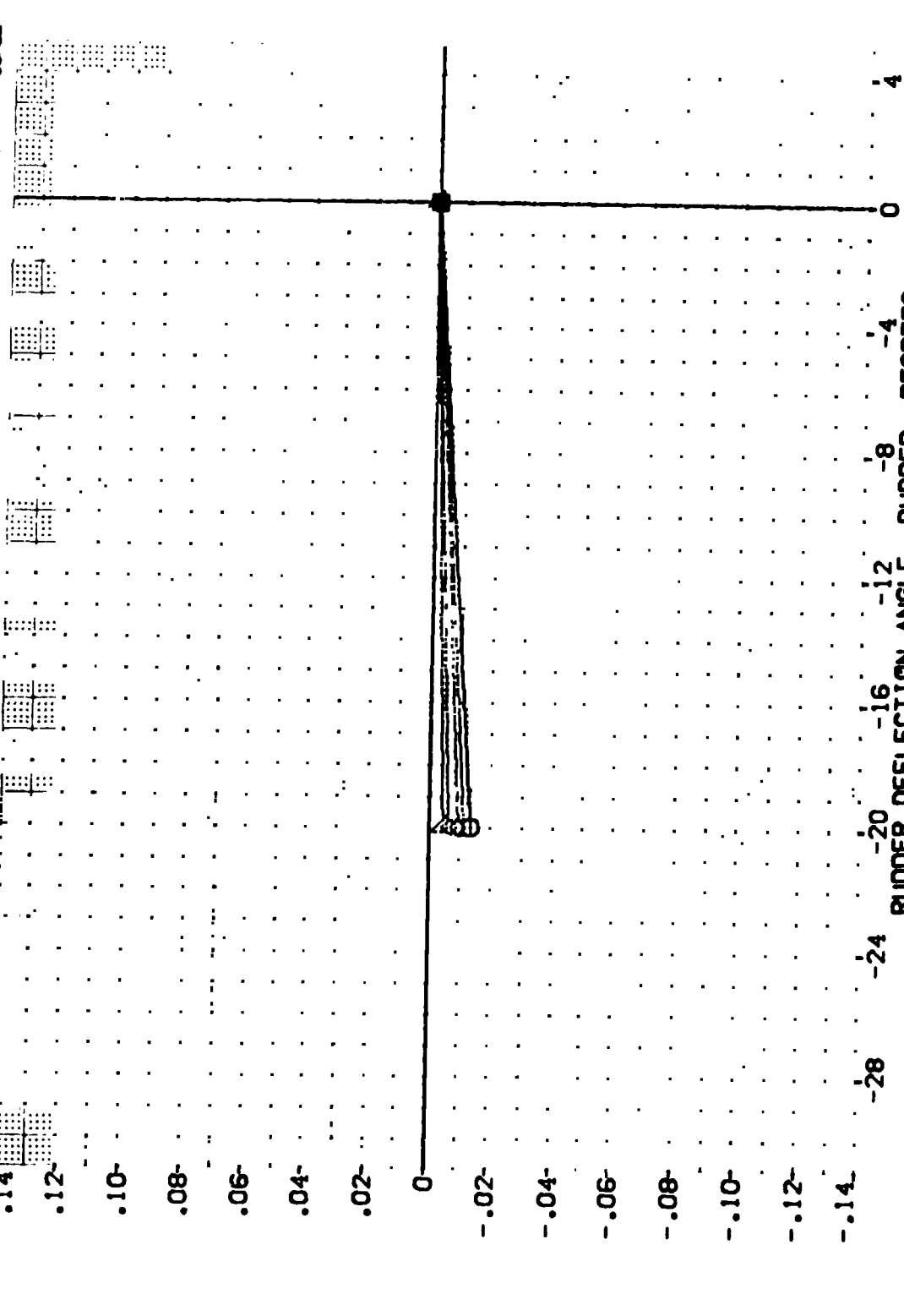


FIG 27 RUDDER EFFECTIVENESS, SPEEDBRAKE BASE SEALED, SPD BRK = 25 DEG.

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {P2011} 0 0A110 001C11F12G1V1ZNE40V10R15C20
 {P2000} 0 0A110 001C11F12G1V1ZNE40V10R15C20

ELEVON	AILERON	RUDDER	SPOILER	REFERENCE INFORMATION
0.000	0.000	0.000	25.000	0REF 4.4118 90.07
0.000	0.000	0.000	25.000	1REF 19.2259 100.03
				2REF 37.9359 100.03
				3REF 43.5974 100.03
				4REF 0.0000 100.03
				5REF 15.1875 100.03
				6REF 0.0405 100.03

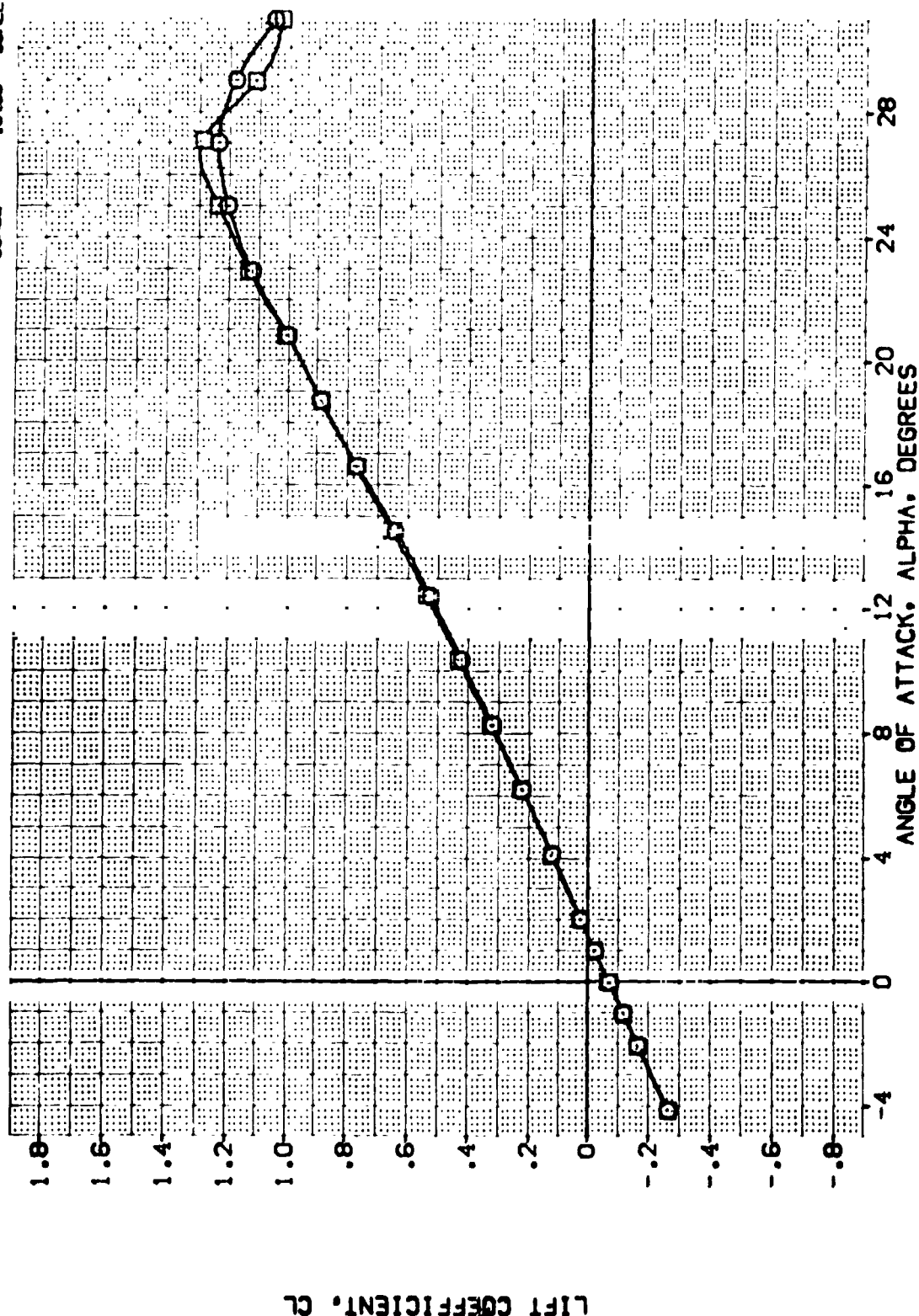


FIG 28 LONGITUDINAL EFFECT OF WING TIP CONFIGURATION, BOFLAP = -11.7 DEG.

(A)MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	FLUDDER	SPD BRK	REFERENCE INFORMATION
{EP3011}	0A110 BASIC11F1251V124E40V1SR13K28	.000	.000	.000	25.000	SREF 4.4119 50.00
{EP3058}	0A110 BASIC11F1251V125E40V1SR13K28	.000	.000	.000	25.000	LREF 19.2288 10.00
						BREF 37.8558 10.00
						VMPP 43.9574 10.00
						ZMPP .0000 10.00
						SCALE 15.1875 10.00
						SCALE .0405 10.00

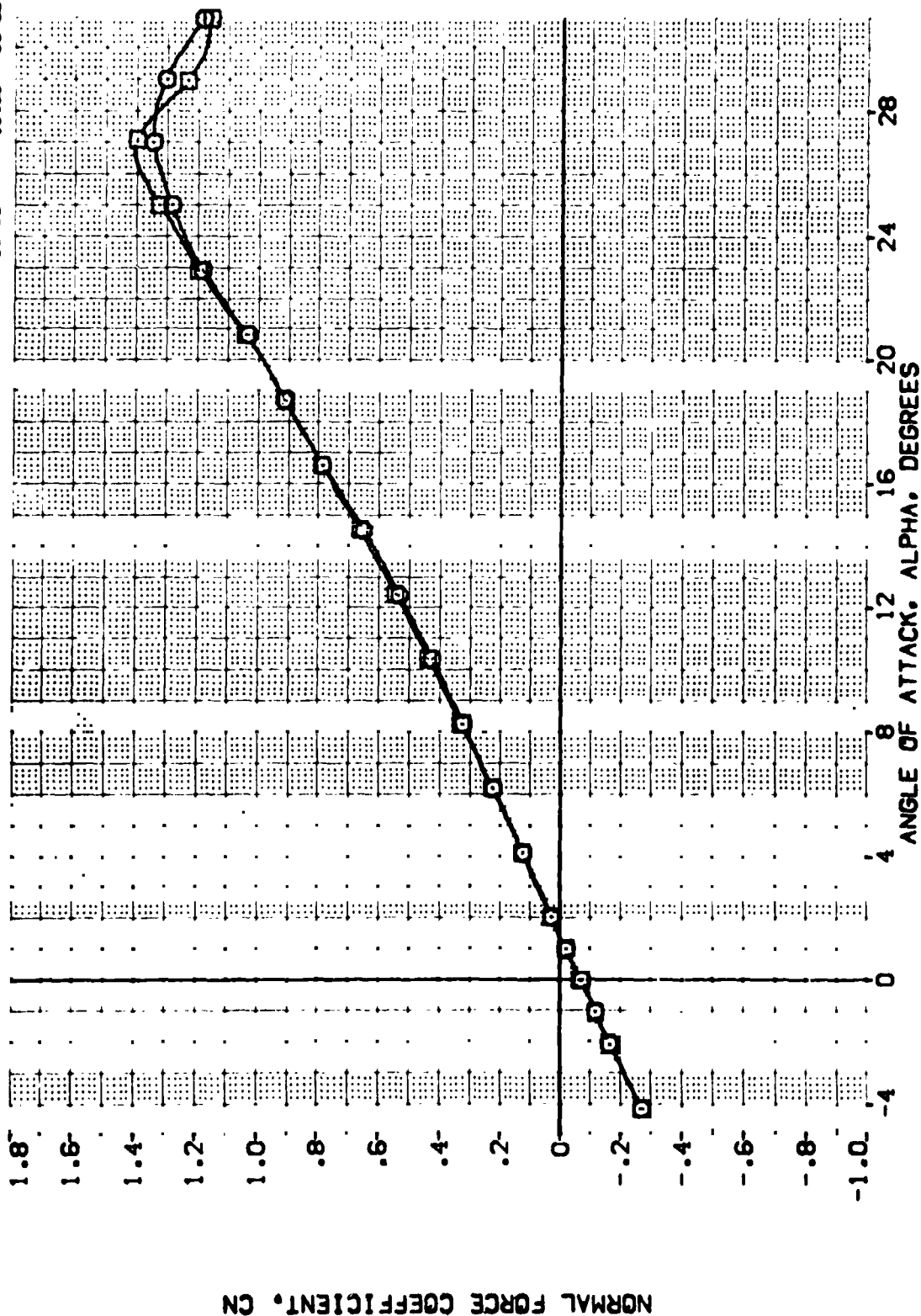
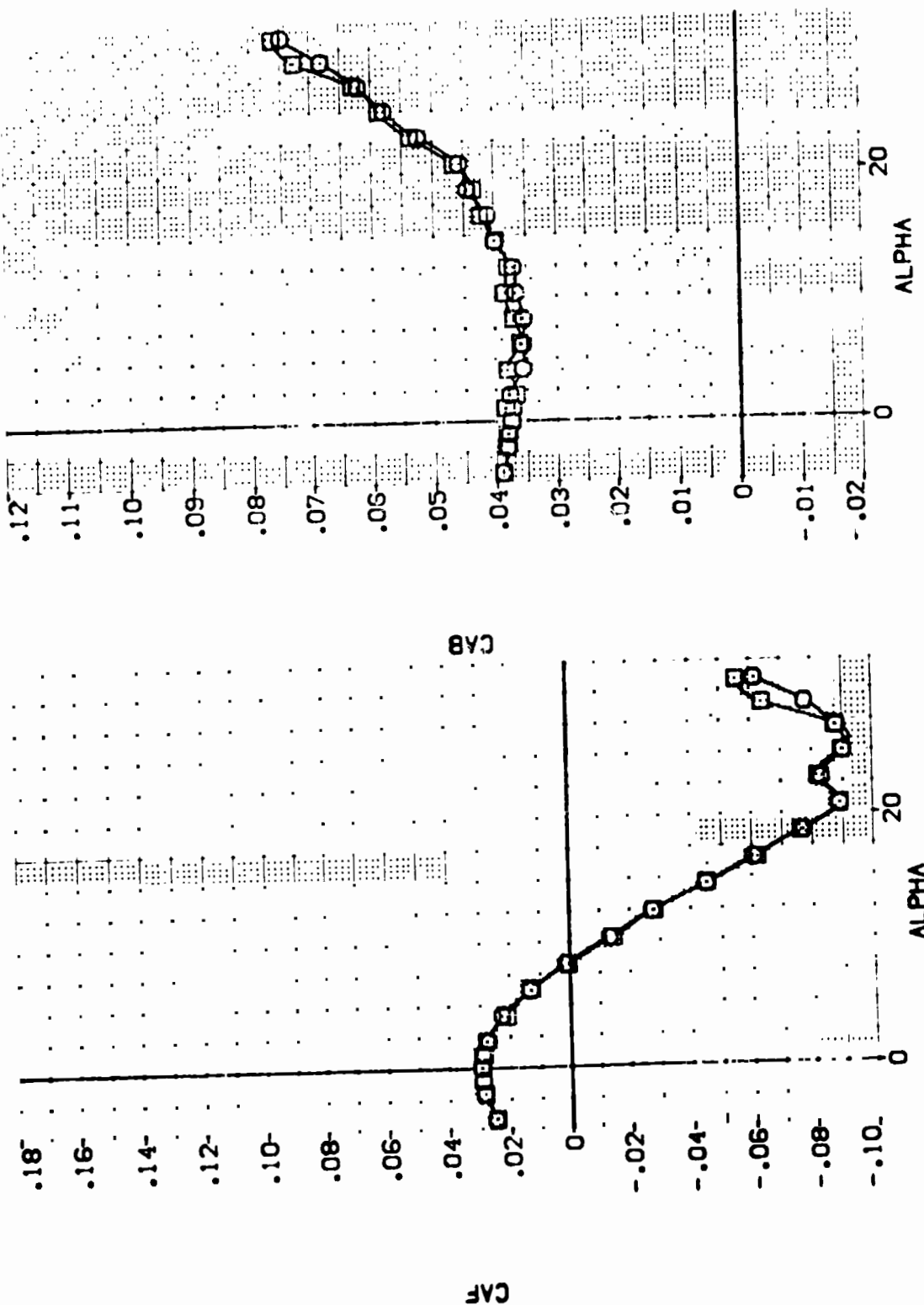


FIG 28 LONGITUDINAL EFFECT OF WING TIP CONFIGURATION, BDFLAP = -11.7 DEG.

(A)MACH = .20

[illegible]

ALPHA

FIG 28 LONGITUDINAL EFFECT OF WING TIP CONFIGURATION, BDFLAP = -11.7 DEG.

(A)MACH = .20 PAGE 184

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 {E30111} 8 0A110 8S1C11F12S1V12E40V18R15C28
 {E30558} 8 0A110 8S1C11F12S1V12E40V18R15C28

ELEVON AILRON RUDDER SPORBN
 .000 .000 .000 25.000
 .000 .000 .000 25.000

REFERENCE INFORMATION
 SREF 4.4119 50.FT. INOES
 LREF 19.2288 INOES
 BREF 37.5258 INOES
 XPRP 43.5974 INOES
 YPRP .0000 INOES
 ZPRP 15.1875 INOES
 SCALE .0405 SCALE

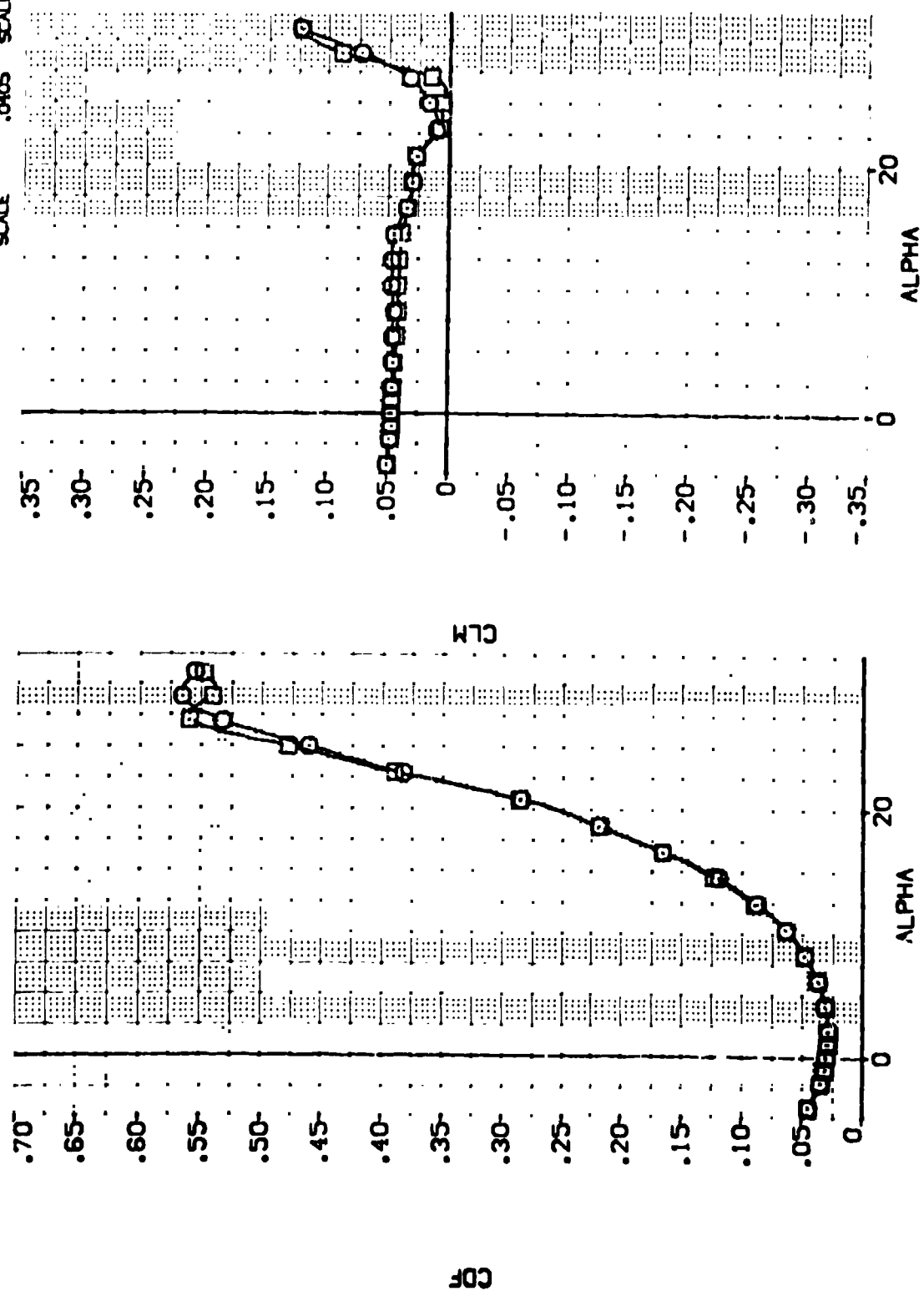


FIG 28 LONGITUDINAL EFFECT OF WING TIP CONFIGURATION, BOFLAP = -11.7 DEG.
 (A)MACH = .20
 PAGE 185

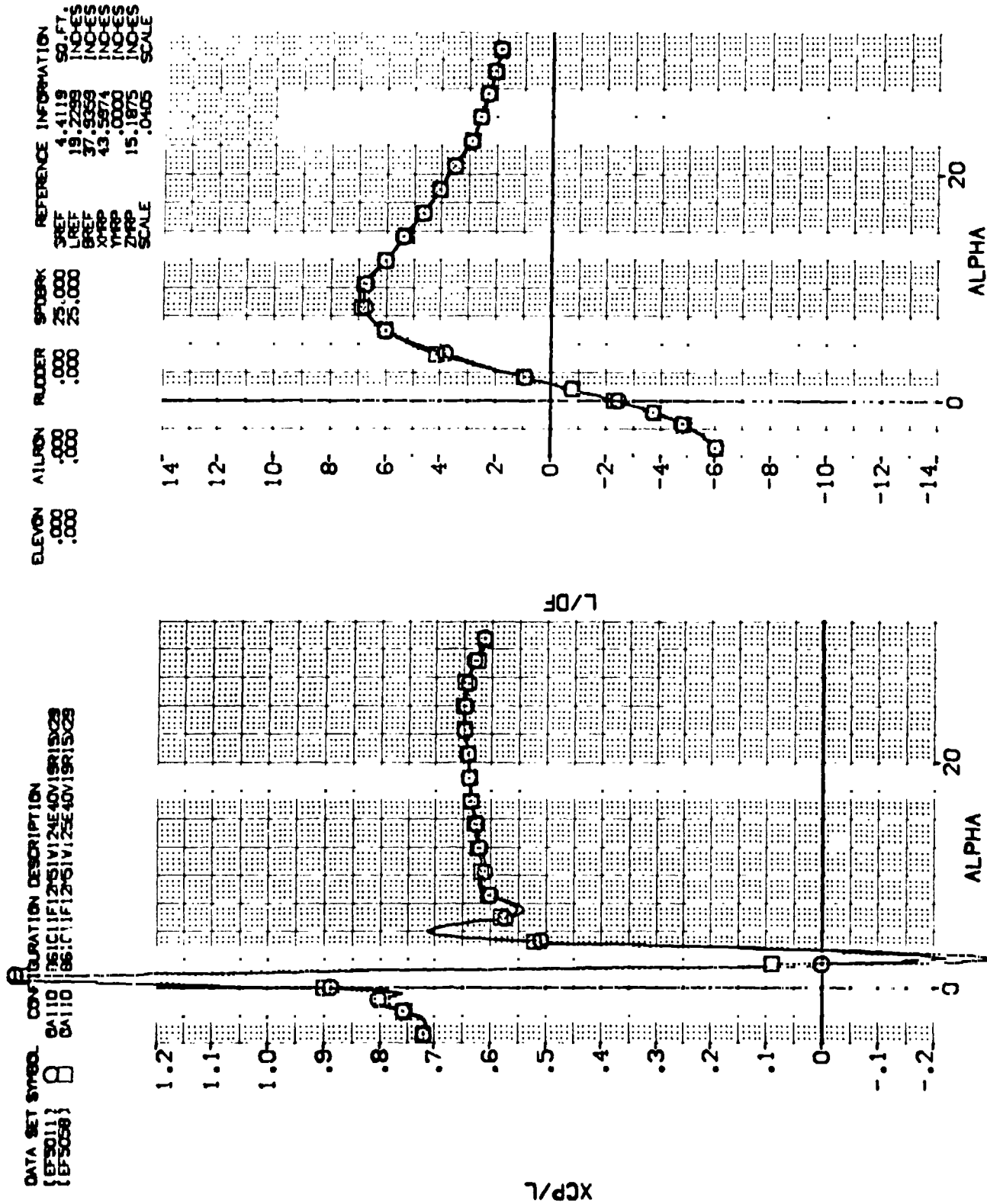


FIG 28 LONGITUDINAL EFFECT OF WING TIP CONFIGURATION, BDFLAP = -11.7 DEG.

CAJ MACH = .20

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (R5028) 0A110 BSIC1F12P51V124E40V1SR15028
 (R5059) 0A110 BSIC1F12P51V125E40V1SR15028

ALPHA RUDDER SPEED AIRLON REFERENCE INFORMATION
 10.000 .000 25.000 .000 4.4119 SQ.FT.
 10.000 .000 25.000 .000 19.2299 IN-ES
 37.9353 IN-ES
 43.5874 IN-ES
 0.000 IN-ES
 15.1875 IN-ES
 0.0405 SCALE

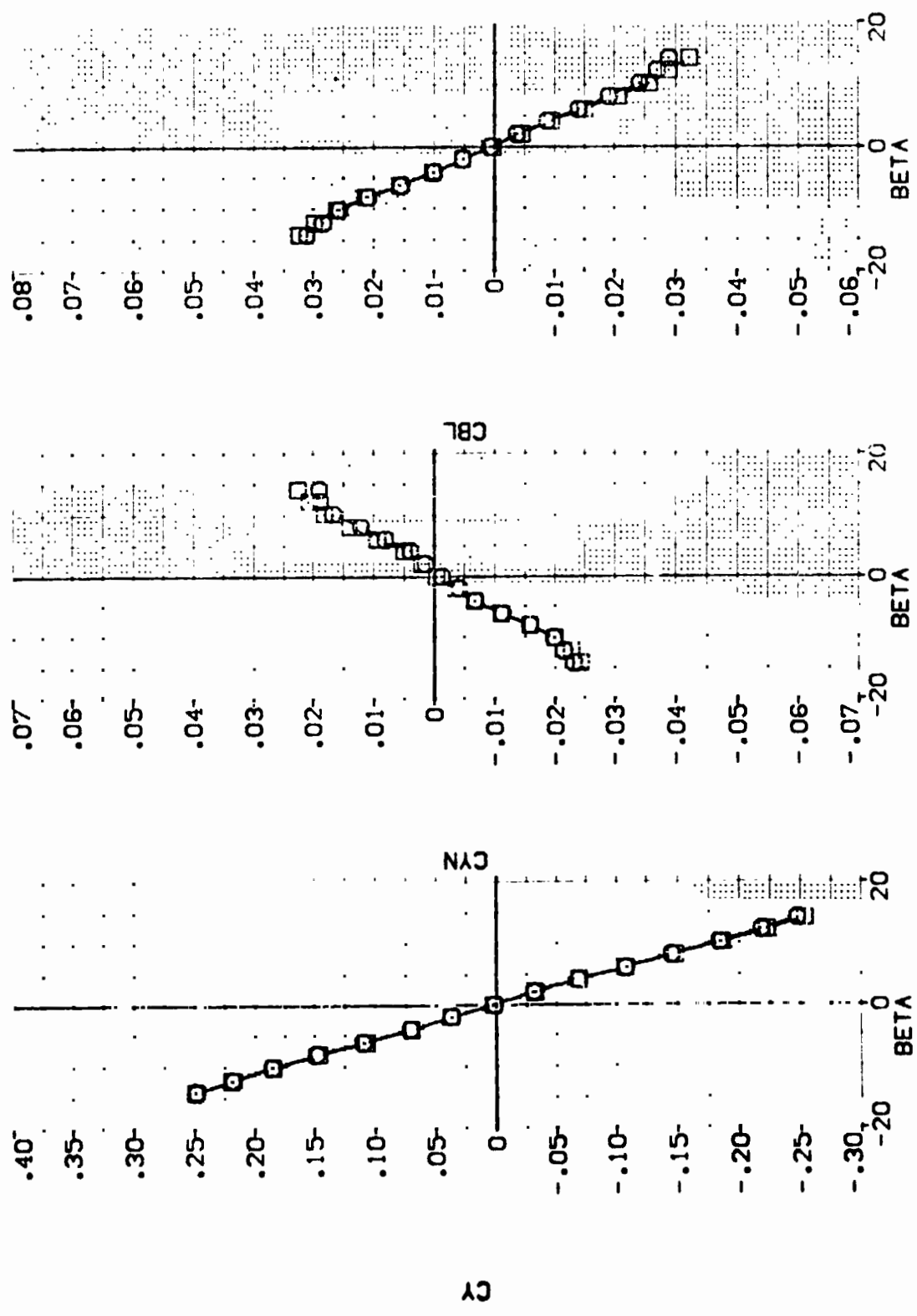


FIG 29 LATERAL/DIRL EFFECT OF WING TIP CONFIGURATION, BDFLAP = - 11.7 DEG.

(A)MACH = .20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	SPOBRK	AILRON	REFERENCE INFORMATION
(N5063)	DA110 BS1C1F12-51V124E40V20R1SVC8	10.000	-25.000	25.000	.000	4.4119 SO.FT.
(N5062)	DA110 BS1C1F12-51V124E40V20R1SVC8	10.000	-20.000	25.000	.000	19.2288 INCHES
(N5061)	DA110 BS1C1F12-51V124E40V20R1SVC8	10.000	-10.000	25.000	.000	37.9358 INCHES
(N5060)	DA110 BS1C1F12-51V124E40V20R1SVC8	10.000	.000	25.000	.000	43.5874 INCHES
						15.1875 INCHES
						SCALE

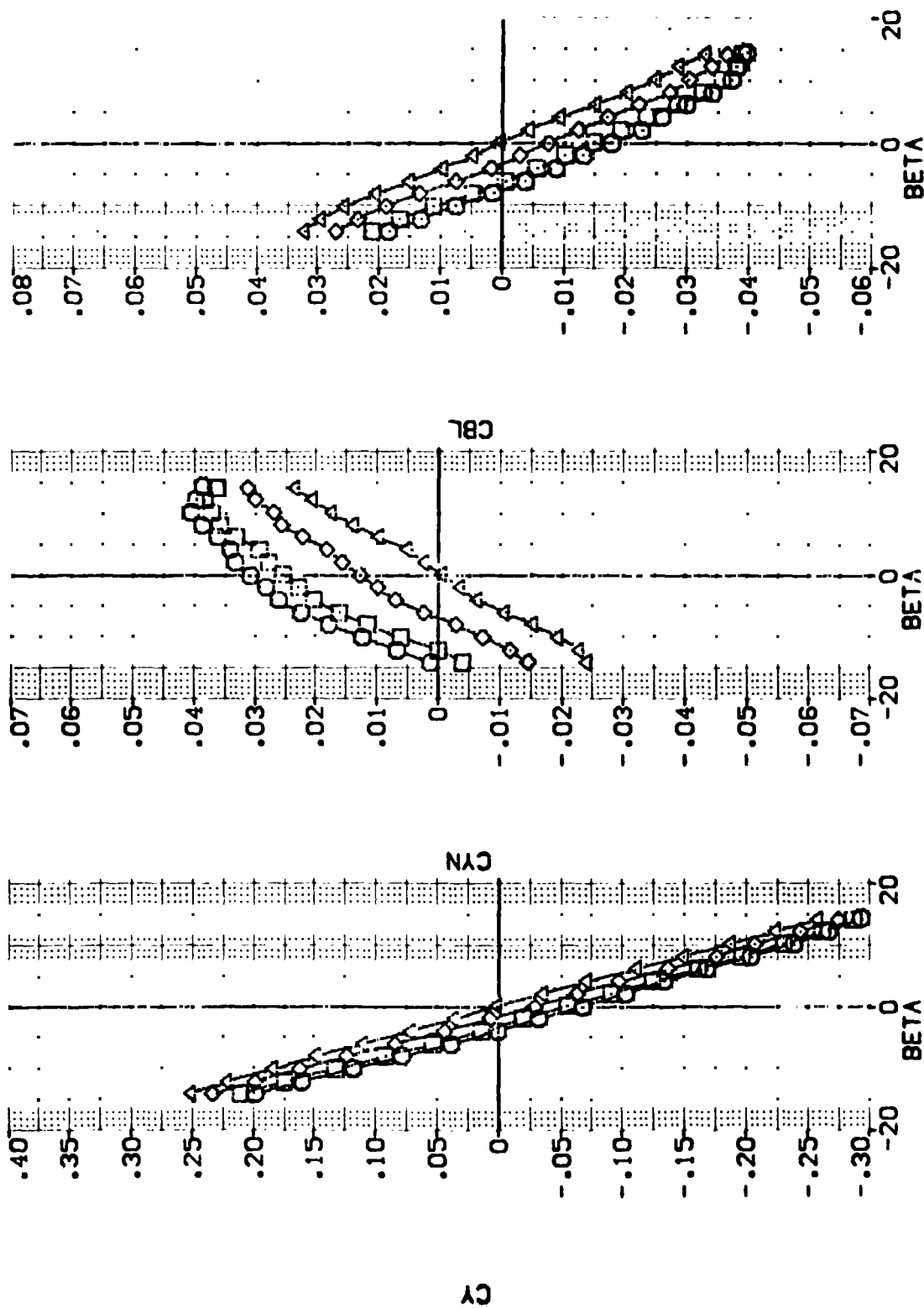


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE. SPOBRK = 25 DEG.

(A)MACH = .20

0A110 B61C11F12M51W124E40V20R15X29

(DF5063)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
□	-14.000	ELEVON	.200 ALPHA	10.000 DATASET	REF 50. FT.
◇	-12.000	ELEVON	.000 AILRON	.000 DF5063	REF 19.2299 INCHES
△	-10.000	SPDBRK	25.000 BDFLAP	-12.000 DF5061	REF 37.5359 INCHES
▽	-8.000				REF 43.5574 INCHES
◀	-6.000				REF .0000 INCHES
					REF 15.1875 INCHES
					SCALE .0405

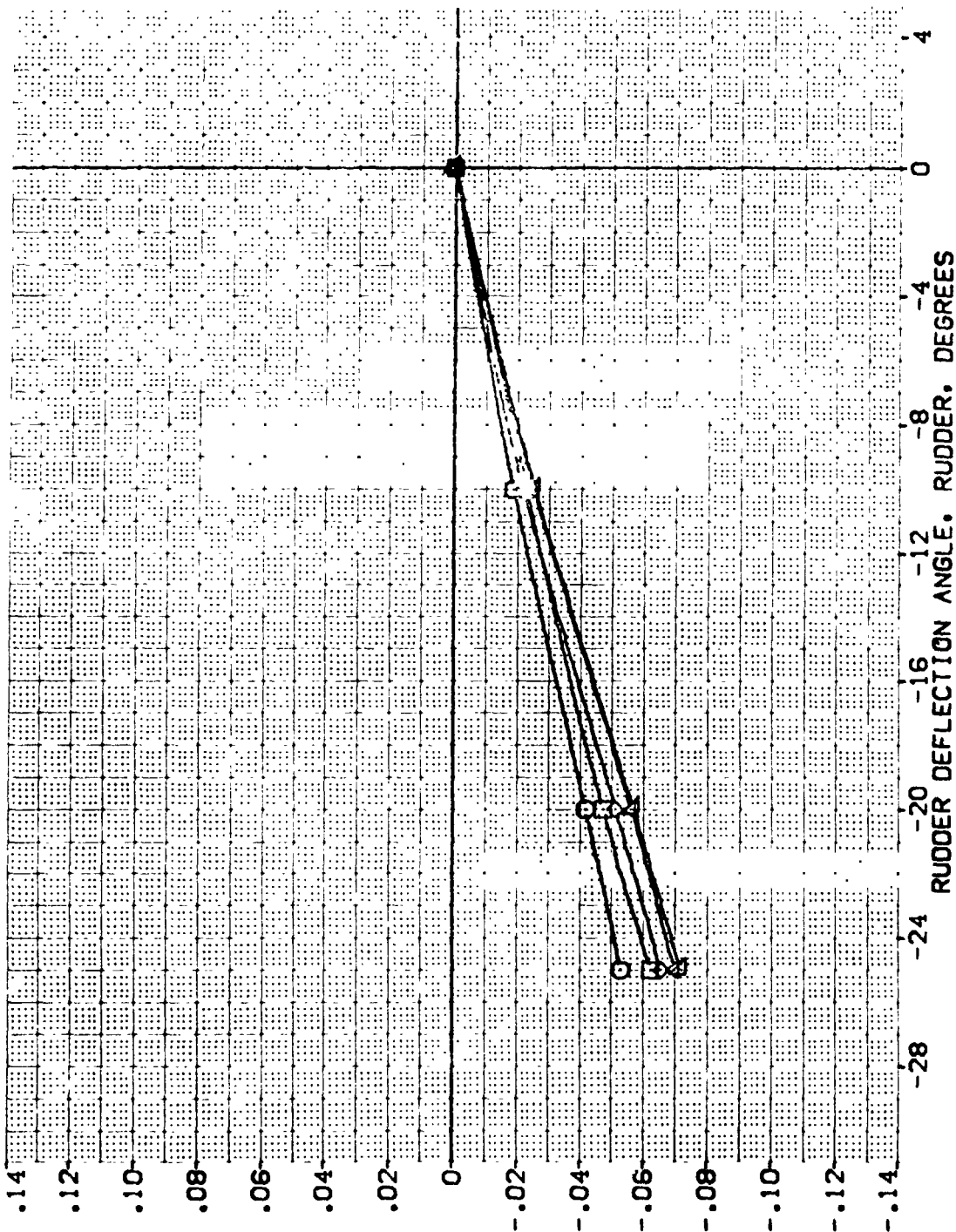


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V20R15X29 (DF5063)

SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
BETA	MACH	ALPHA	AILRON	EDFLAP	RUDDER	DATASET	RUDDER	SREF	SO.FT.	IN-ES	IN-ES
-4.000	ELEVON	.200	.000		-25.000	DF5062	.000	LREF	4.4119	IN-ES	IN-ES
-2.000	SPDBRK	.000	25.000		-10.000	DF5063	.000	XMRP	19.2299	IN-ES	IN-ES
.000						DF5061		YMRP	37.9359	IN-ES	IN-ES
2.000								ZMRP	43.5974	IN-ES	IN-ES
4.000								SCALE	.0000	IN-ES	IN-ES
									15.1875	IN-ES	IN-ES
									.0405	SCALE	

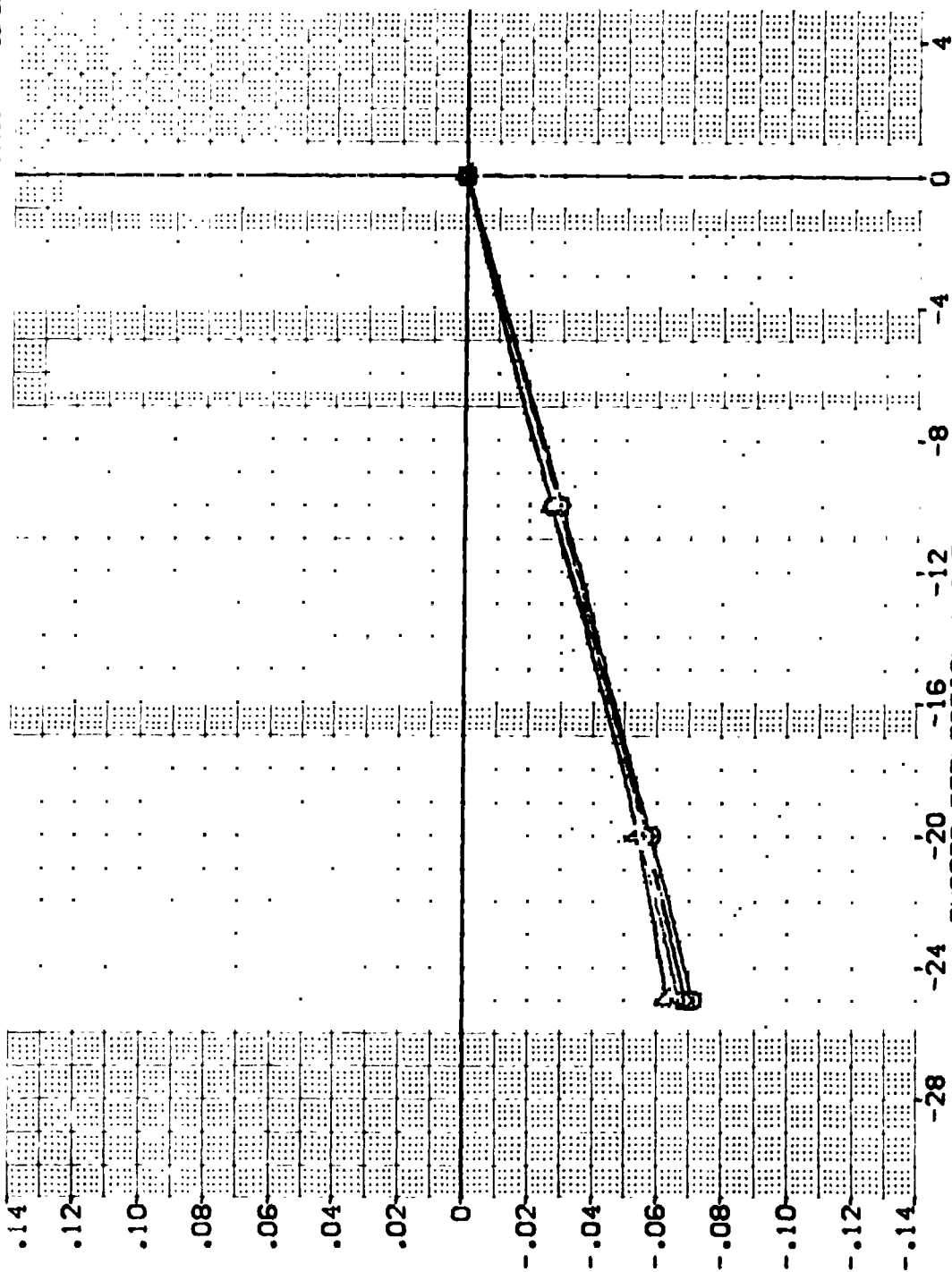


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V20R15X29

(DFS063)

SYMBOL	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
	BETA	MACH	ALPHA	AILRON	BOFLAP	10.000	DATASET	RUDDER	DFS062	RUDDER	SREF	SQ.FT.
○	8.000		.200	.000		.000	DFS063	-25.000	DFS062	-20.000	LREF	19.2298
□	8.000	ELEVON					DFS063	-10.000	DFS062		SREF	37.9365
◇	10.000	SPDBRK	25.000			-12.000	DFS061				XREF	43.5874
△	12.000										YREF	.0000
▽	14.000										ZREF	15.1875
											SCALE	.0405
												INCHES
												INCHES
												INCHES
												INCHES
												SCALE

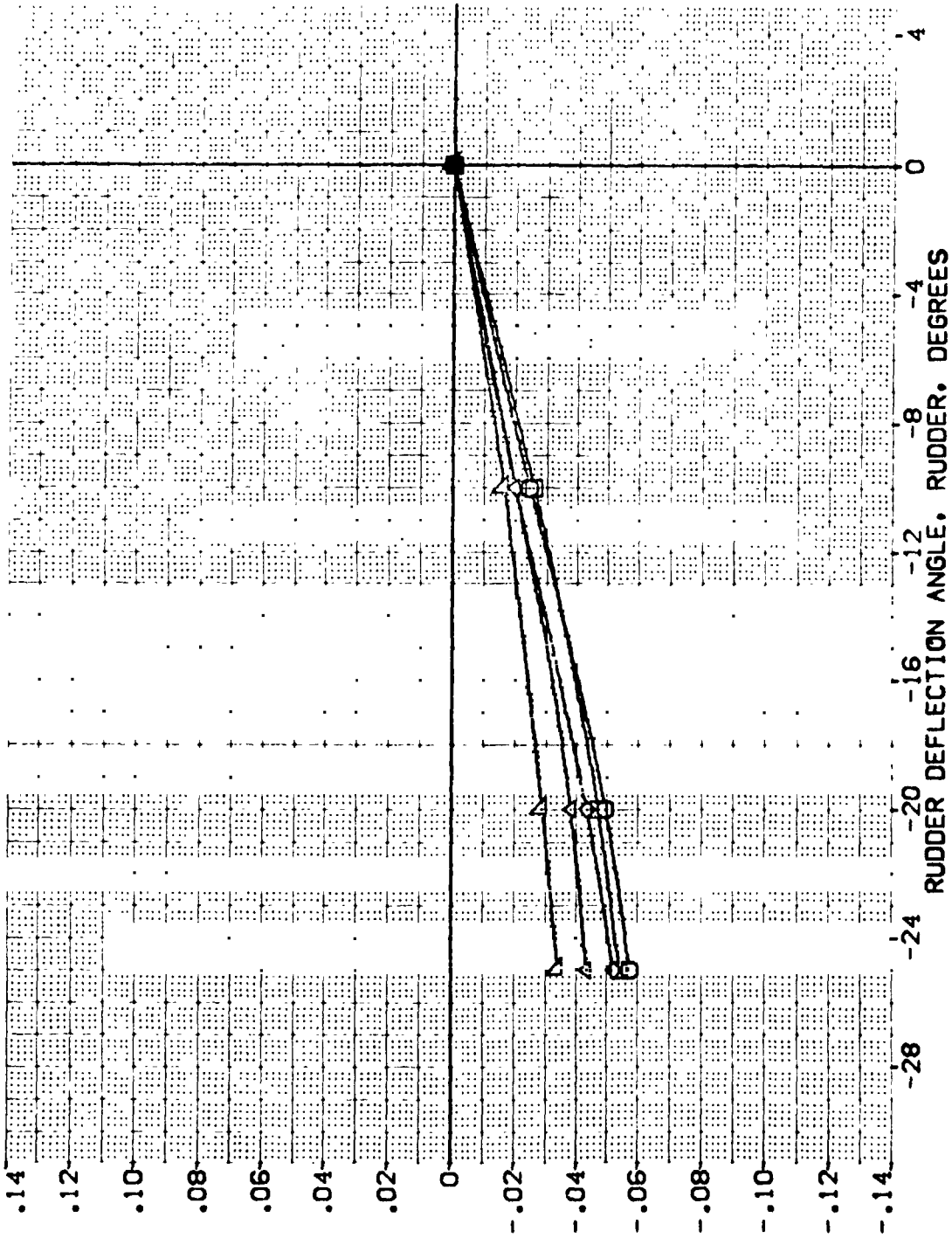


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V20R15X29

(DF5063)

PARAMETRIC VALUES			DATA SOURCE			REFERENCE INFORMATION		
BETA	MACH	ALPHA	RUDDER	DATASET	RUDDER	SREF	SO.FT.	
-14.000	.000	.000	-25.000	DF5063	-20.000	19.2259	INCHES	
-12.000	.000	.000	-10.000	DF5061	.000	37.9359	INCHES	
-10.000	.000	.000				43.5974	INCHES	
-8.000	.000	.000				15.1875	INCHES	
-6.000	.000	.000				.0405	SCALE	

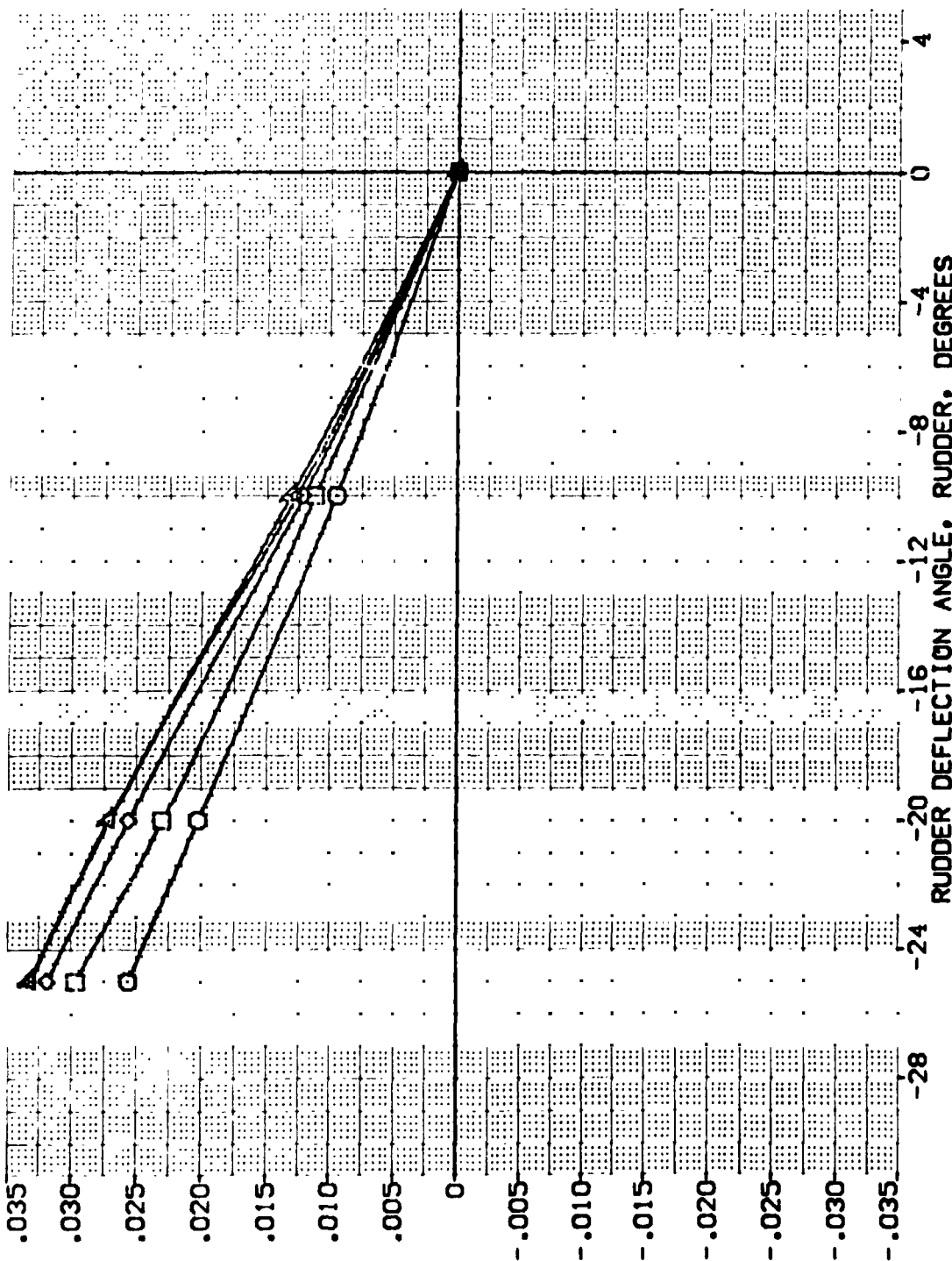


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDSRK = 25 DEG.

0A110 B61C11F12M51W124E40V20R15X23

(DF5063)

SYMBOL
□
◇
△
▽

BETA
-4.000
-2.000
.000
2.000
4.000

MACH
ELEVON
SPDRK

PARAMETRIC VALUES
ALPHA
AILRON
BOLAP

DATA SOURCE
RUDDER
-25.000
-10.000

DATASET
DF5062
DF5060

RUDDER
-20.000
.000

REFERENCE INFORMATION
SREF 4.4119 SQ.FT.
LREF 19.2299 INCHES
BREF 37.5359 INCHES
XREF 43.5974 INCHES
YREF .0000 INCHES
ZREF 15.1875 INCHES
SCALE .0405

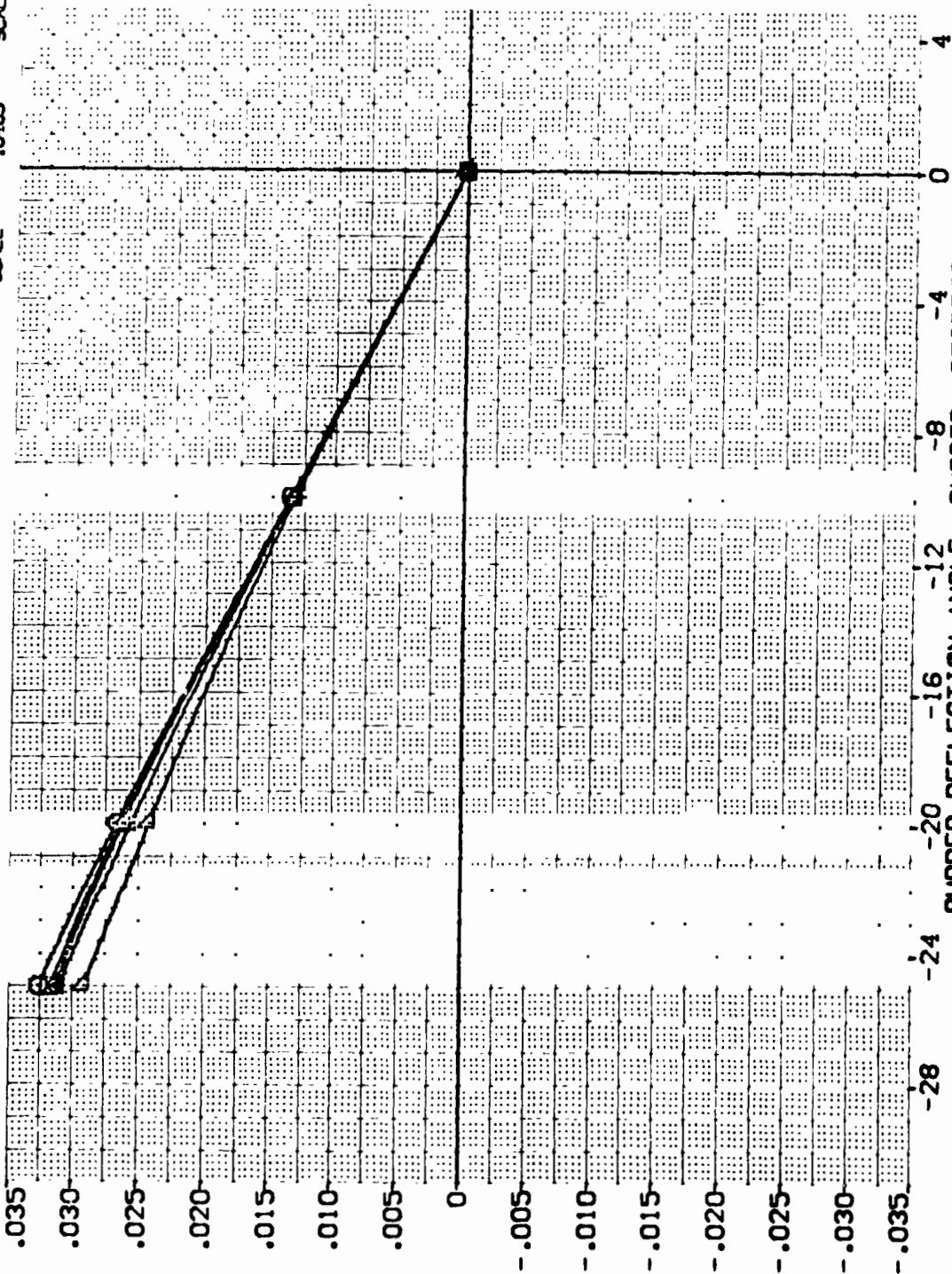


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDRK = 25 DEG.

(DF5063)

0A110 B61C11F12M51W124E40V20R15X29

PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION		
BETA	MACH	ALPHA	RUDDER	DATASET	RUDDER	SREF	SO.FT.
6.000		.200				19.2259	INCHES
8.000		.000				37.5359	INCHES
10.000		.000				43.5974	INCHES
12.000		.000				.0000	INCHES
14.000		.000				.0000	INCHES
						15.1875	SCALE
						.0405	SCALE

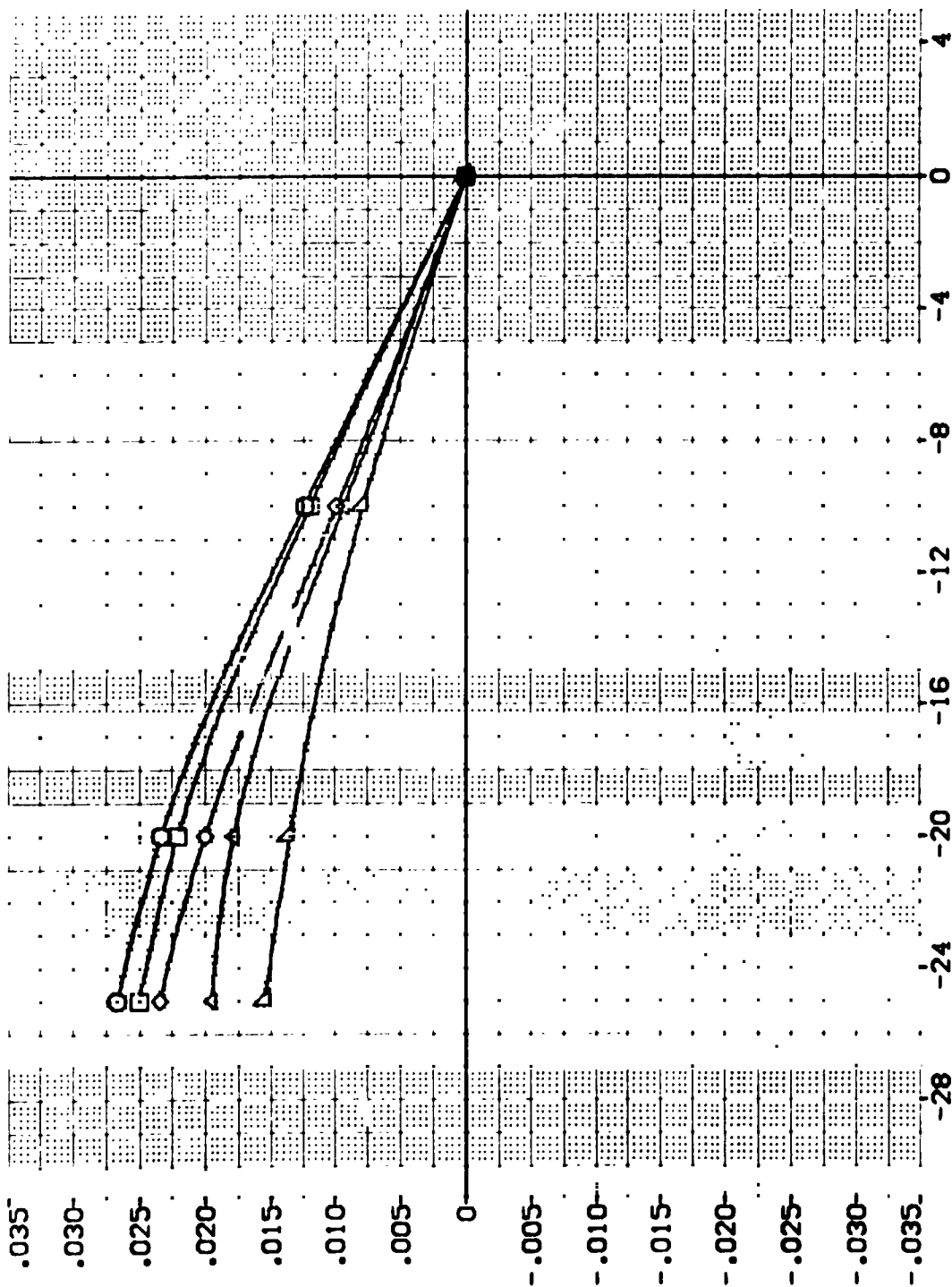


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 25 DEG.

(DF5063)

GA110 B61C11F12M51W124E40V20R15X29

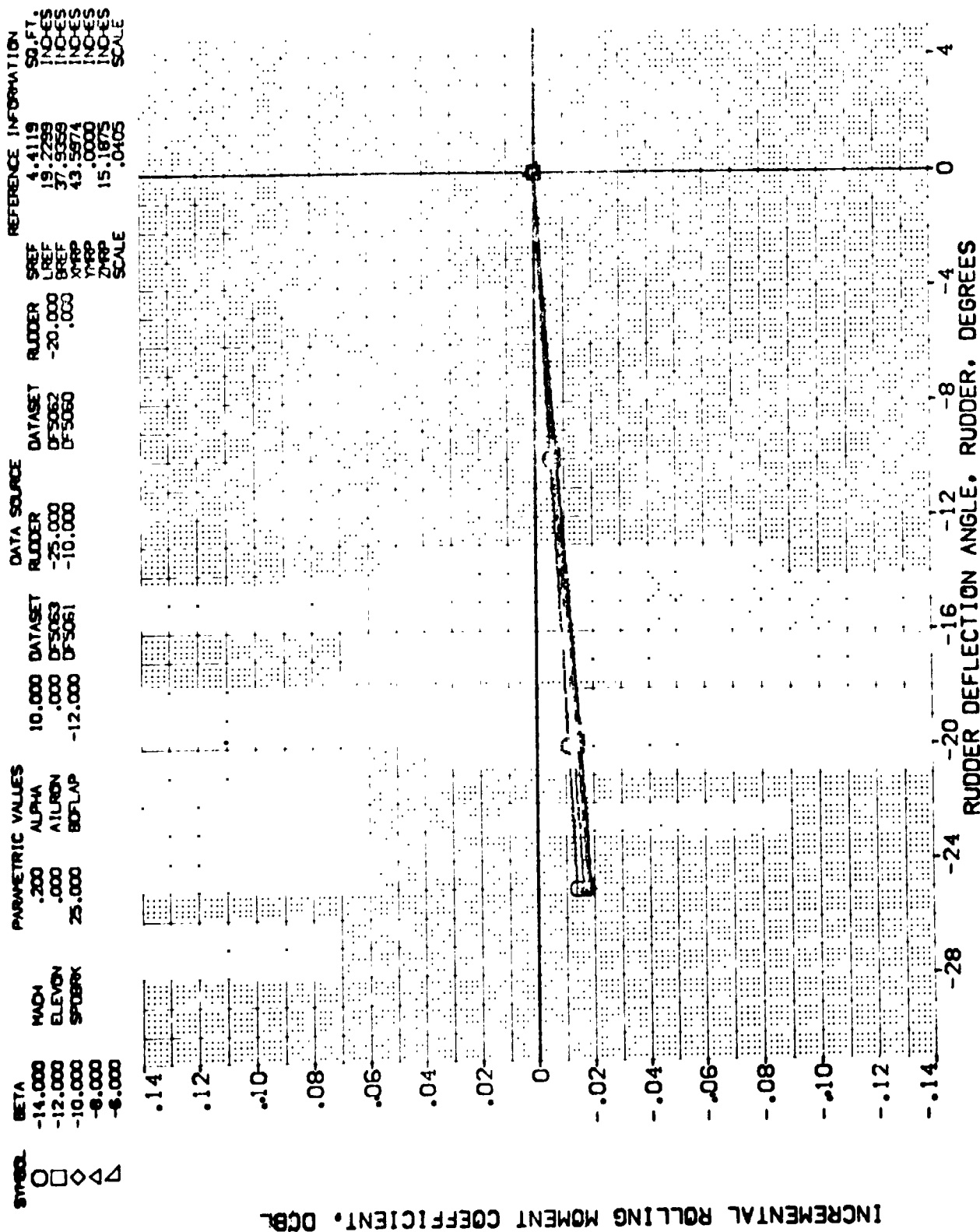


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V20R15X29 (DF5063)

SYMBOL	BETA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
		MACH	ALPHA	AILRON	BDCLAP	10.000	DATASET	RUDDER	DATASET	RUDDER	SREF	4.1118	50. FT.
	-4.000	ELEVON	.200	.000		.000	DF5063	-25.000	DF5062	-20.000	LREF	19.2259	INO-ES
	-2.000	SPDBRK	25.000			-12.000	DF5061	-10.000	DF5060	.000	BREF	37.9359	INO-ES
	.000										XPRP	43.9874	INO-ES
	2.000										YPRP	.0000	INO-ES
	4.000										ZPRP	15.1875	INO-ES
											SCALE	.0405	SCALE

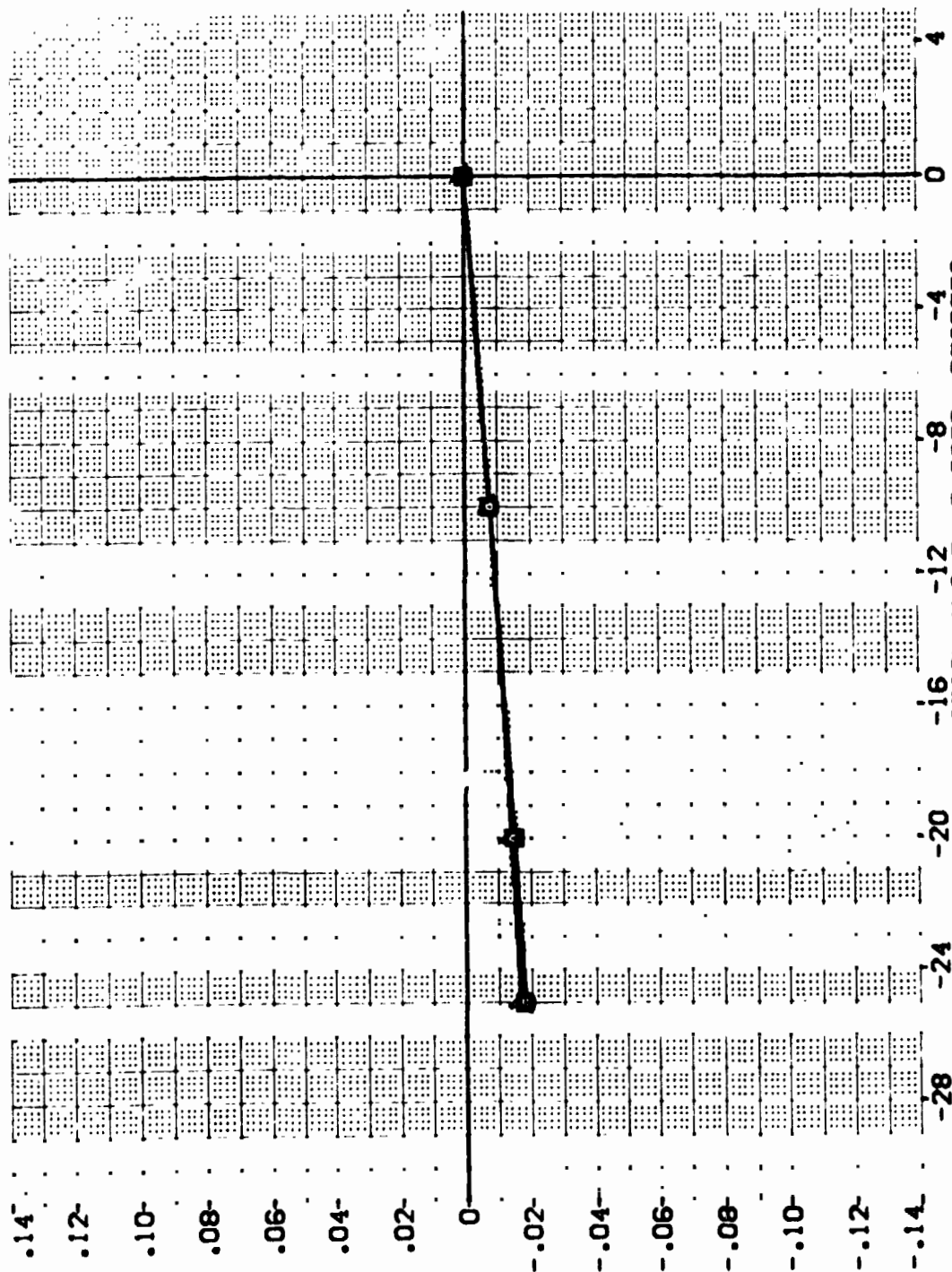


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE. SPDBRK = 25 DEG.

0A110 B61C11F12M51W124E40V2CR15X29 (DF5063)

SYMBOL	PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION			
	BETA	MACH	ALPHA	DATA SET	RUDDER	SREF	SO.FT.	INCHES	INCHES
○	8.000	.200	.000	10.000	DF5063	REF	4.4119	19.2293	INCHES
□	9.000	.000	.000	.000	DF5063	REF	19.2293	37.5359	INCHES
◇	10.000	25.000	BOFLAP	-12.000	DF5061	REF	43.5974	.0000	INCHES
△	12.000					REF	15.1875	.0405	INCHES
△	14.000					REF			SCALE

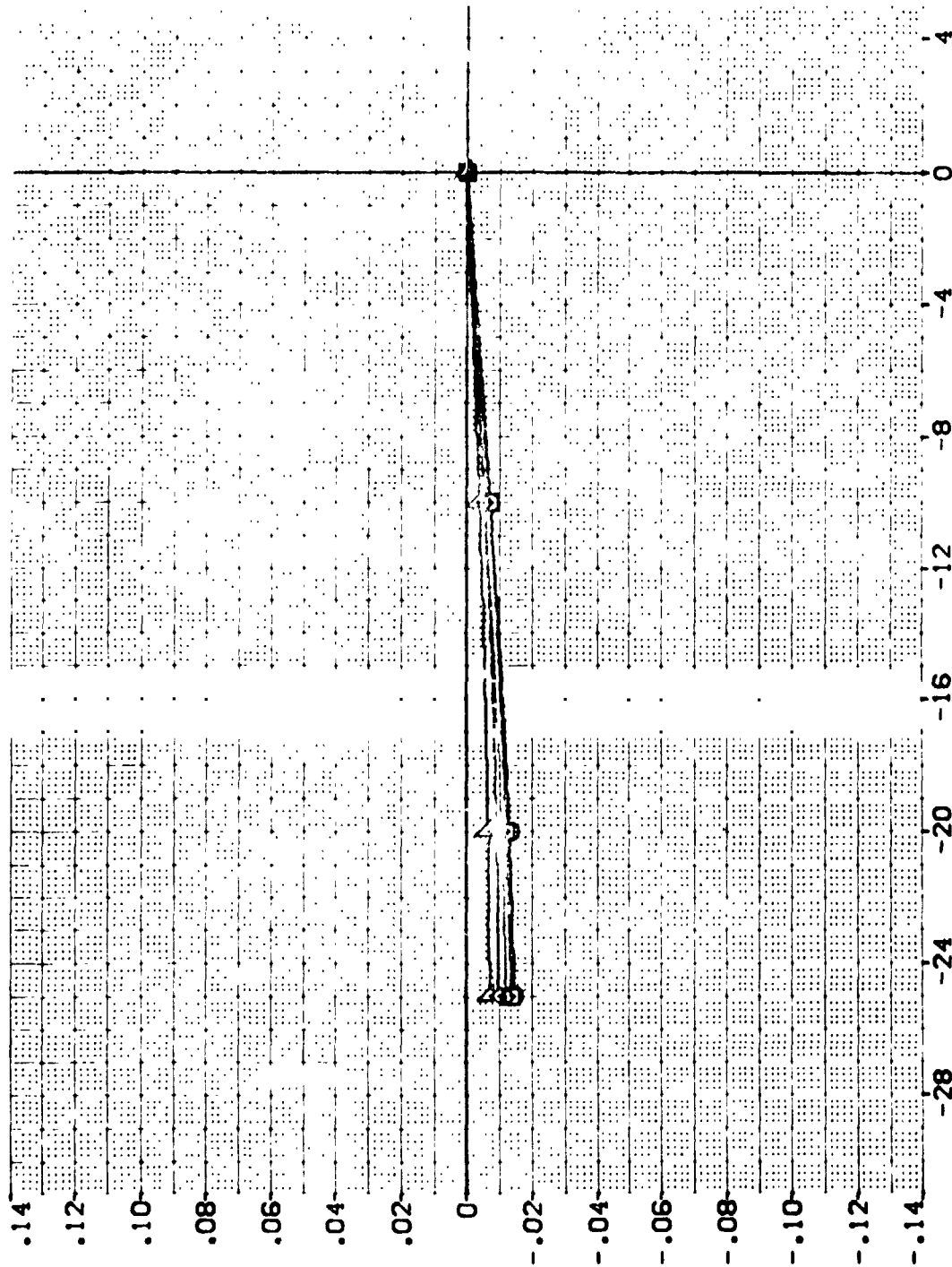
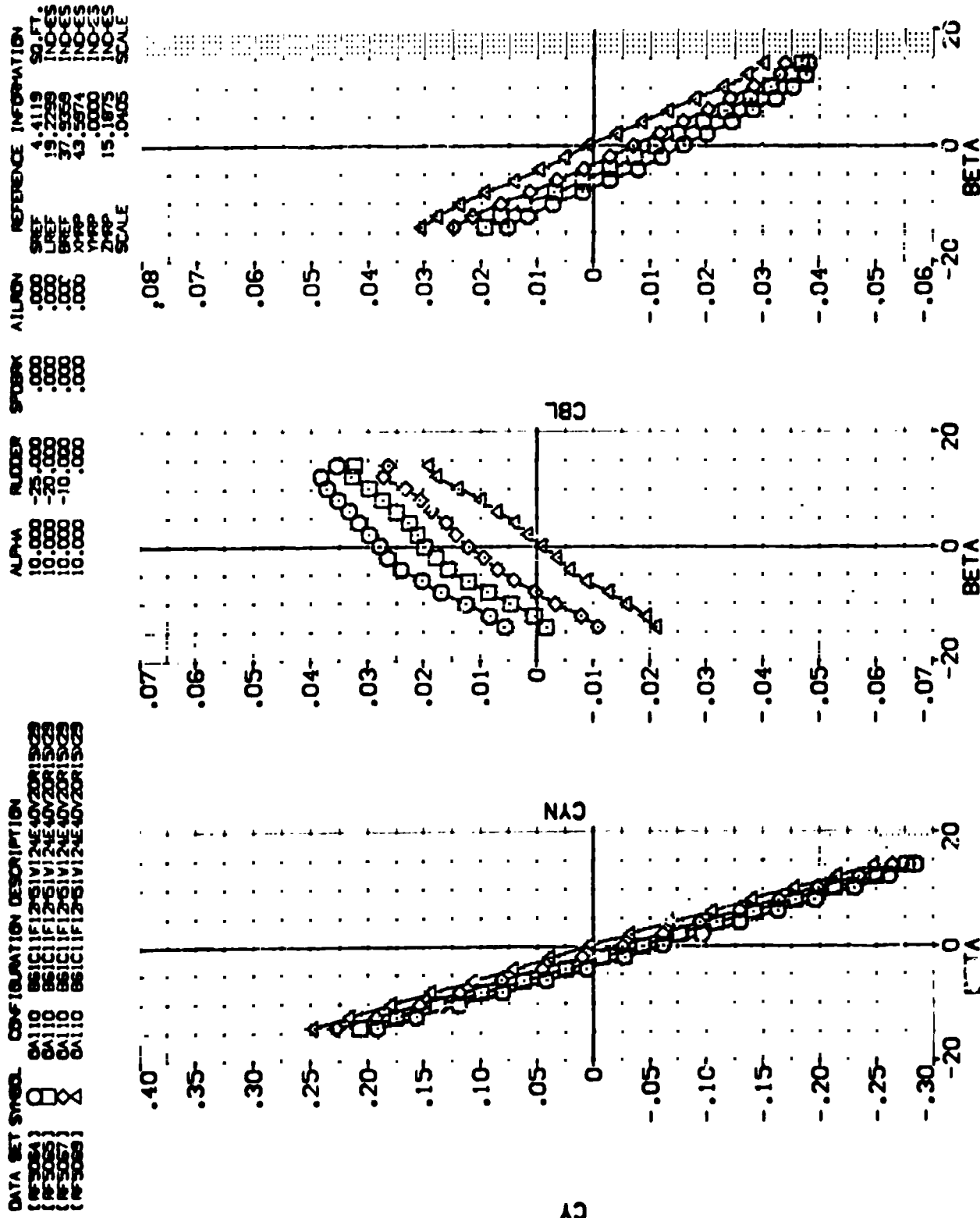


FIG 30 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 25 DEG.



(A)MACH = .20

(DF5064)

0A110 861C11F12M51W124E40V20R15X29

SYMBOL	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
	BETA	MACH	ELEVON	SPDBRK	ALPHA	AILRON	BDFLAP	RUDDER	DATASET	RUDDER	SREF	SO.FT.
○	-14.000				.200				DF5065	-20.000	19.2258	INO-ES
□	-12.000				.000	AILRON			DF5064	-25.000	37.9358	INO-ES
◇	-10.000				.000	BDFLAP			DF5067	-10.000	43.5874	INO-ES
△	-8.000										.0000	INO-ES
▽	-6.000										15.1875	INO-ES
											.0405	SCALE

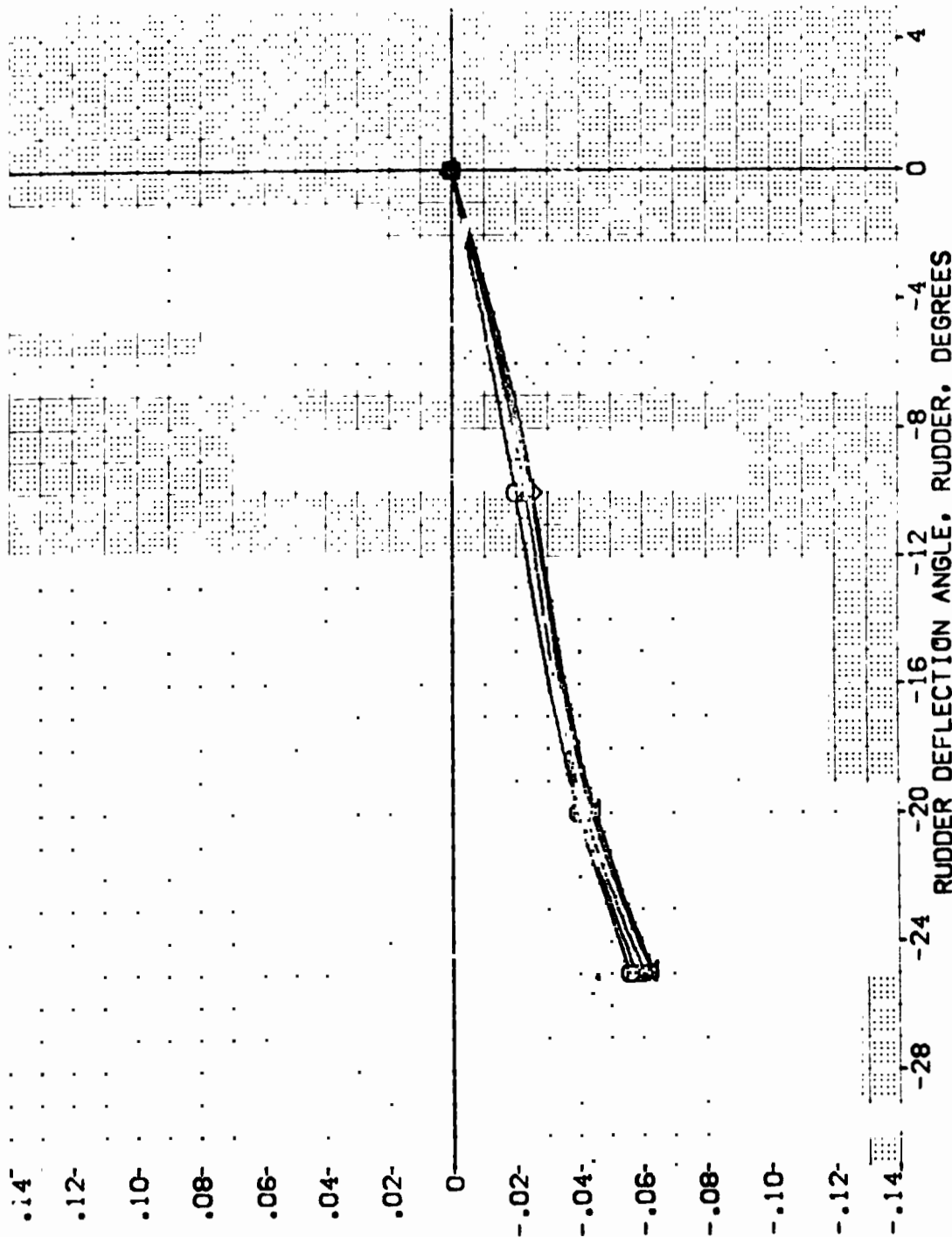


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 0 DEG.

0A110 B61C11F12M51W124E40V20R15X29 (OF5064)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	-4.000	ELEVON	.200 ALPHA	10.000 DATASET	SREF SQ.FT.
□	-2.000	ELEVON	.000 AILRON	.000 DF5064	LREF INO-ES
◇	.000	SPDRK	.000 BDPLAP	-12.000 DF5067	BREF INO-ES
△	2.000				XREF INO-ES
	4.000				YREF INO-ES
					ZREF INO-ES
					SCALE

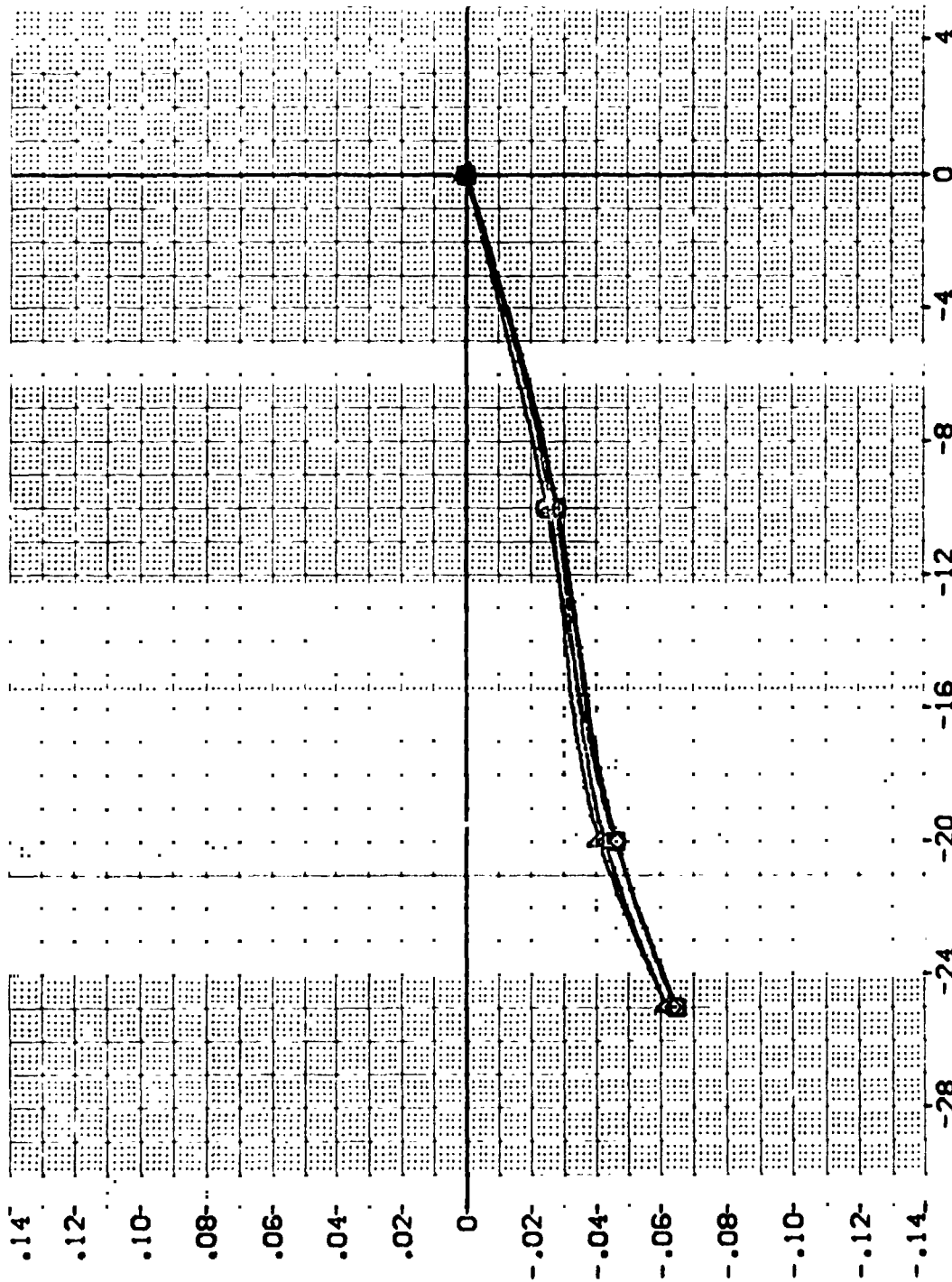


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDRK = 0 DEG.

(DF5064)

0A110 BC.C11F12M51W124E40V20R15X29

SYMBOL	BETA	PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION				
		MACH	ALPHA	10.000	DATASET	RUDDER	DATASET	RUDDER	SREF	4.4119	50. FT.	
○	8.000	ELEVON	.000	AILRON	.000	DF5064	DF5065	-20.000	LREF	19.2238	INCHES	
◇	10.000	SPDBRK	.000	BDFLAP	-12.000	DF5067	DF5069	.000	YPRP	37.5358	INCHES	
△	12.000								ZPRP	43.5974	INCHES	
▽	14.000								SCALE	15.1875	INCHES	
										SCALE	.0405	

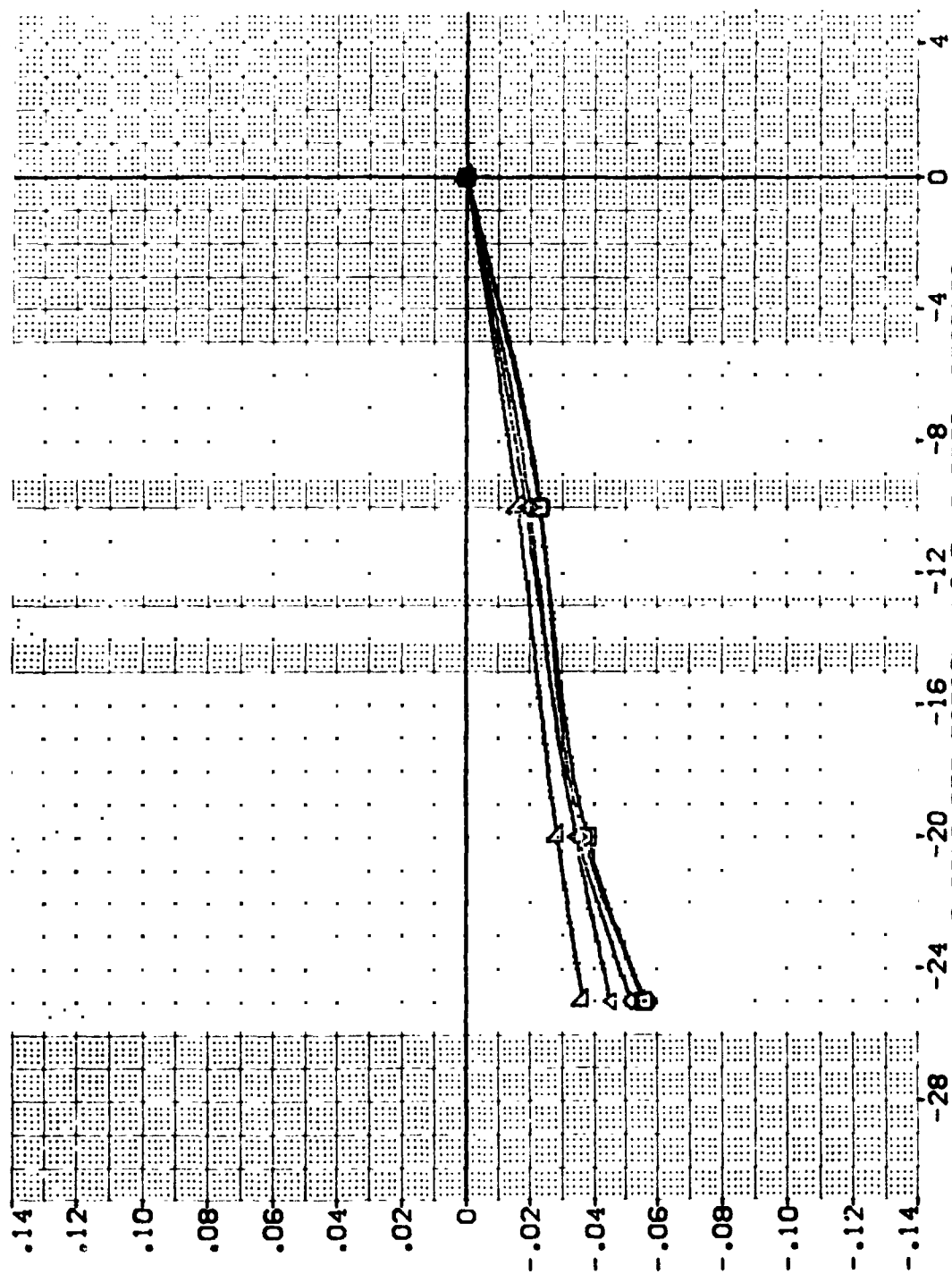


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 0 DEG.

9A110 B61C11F12M51W124E40V20R15X29

SYMBOL	BETA	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	-14.000	MACH	10.000	REF 14.4119 SO.FT. 19.2299
□	-12.000	ELEVON	.000	REF DF5054 INCHES 37.9359
◇	-10.000	90DEGR	-12.000	REF DF5059 INCHES 43.5674
△	-8.000			REF 15.0000 INCHES 15.1875
	-6.000			REF 15.0405 SCALE

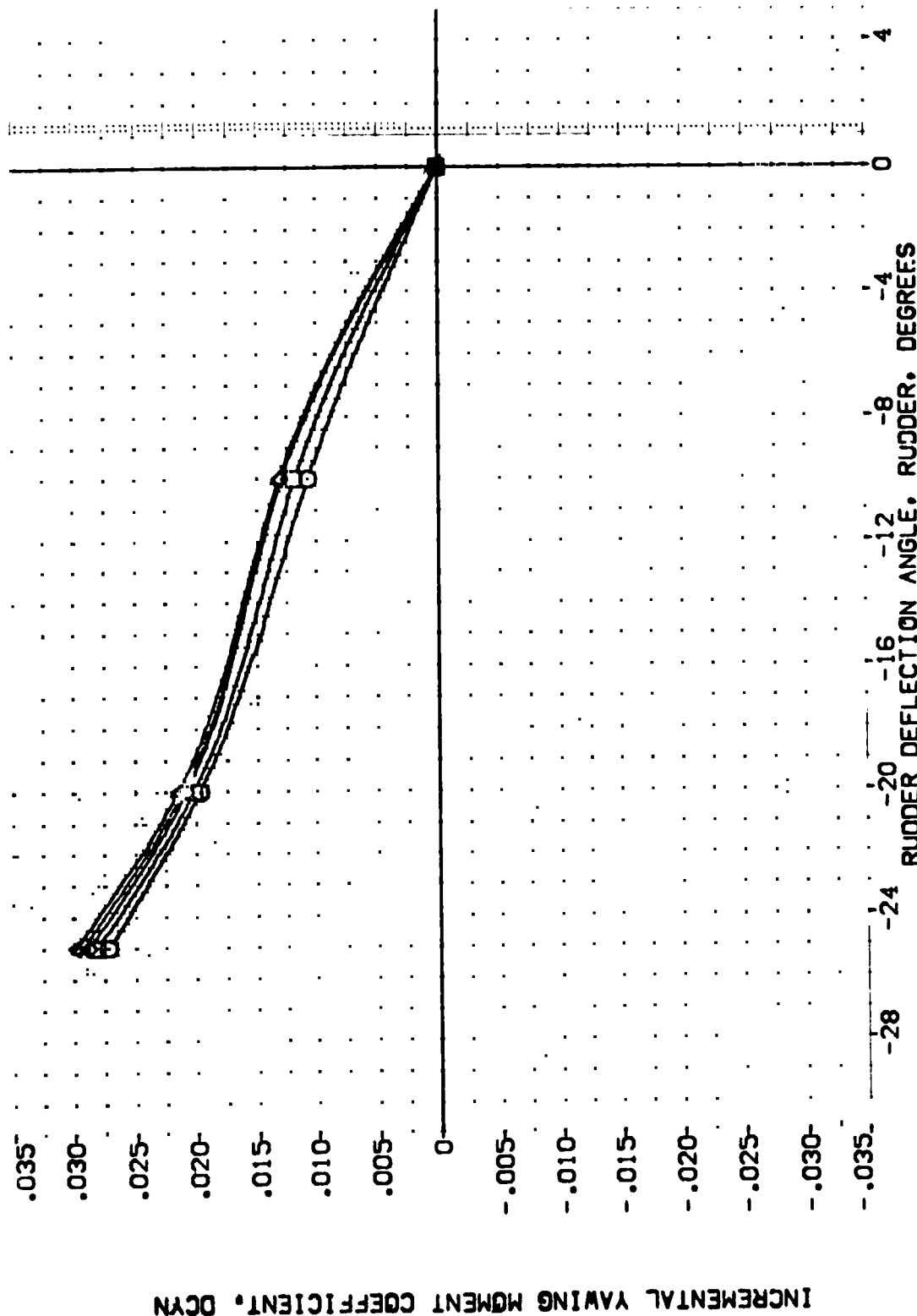


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 0 DEG.

0A110 B61C11F12M51W124E40V20R15X29

(DF5064)

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	-4.000	ELEVON	.200 ALPHA	10.000 DATASET	4.4119 SQ.FT.
□	-2.000	ELEVON	.000 AILRON	.000 DF5064	19.2239 INCHES
◇	.000	SPDRK	.000 BOFLAP	-12.000 DF5067	37.9359 INCHES
△	2.000				43.5974 INCHES
	4.000				15.1673 INCHES
					.0405 SCALE

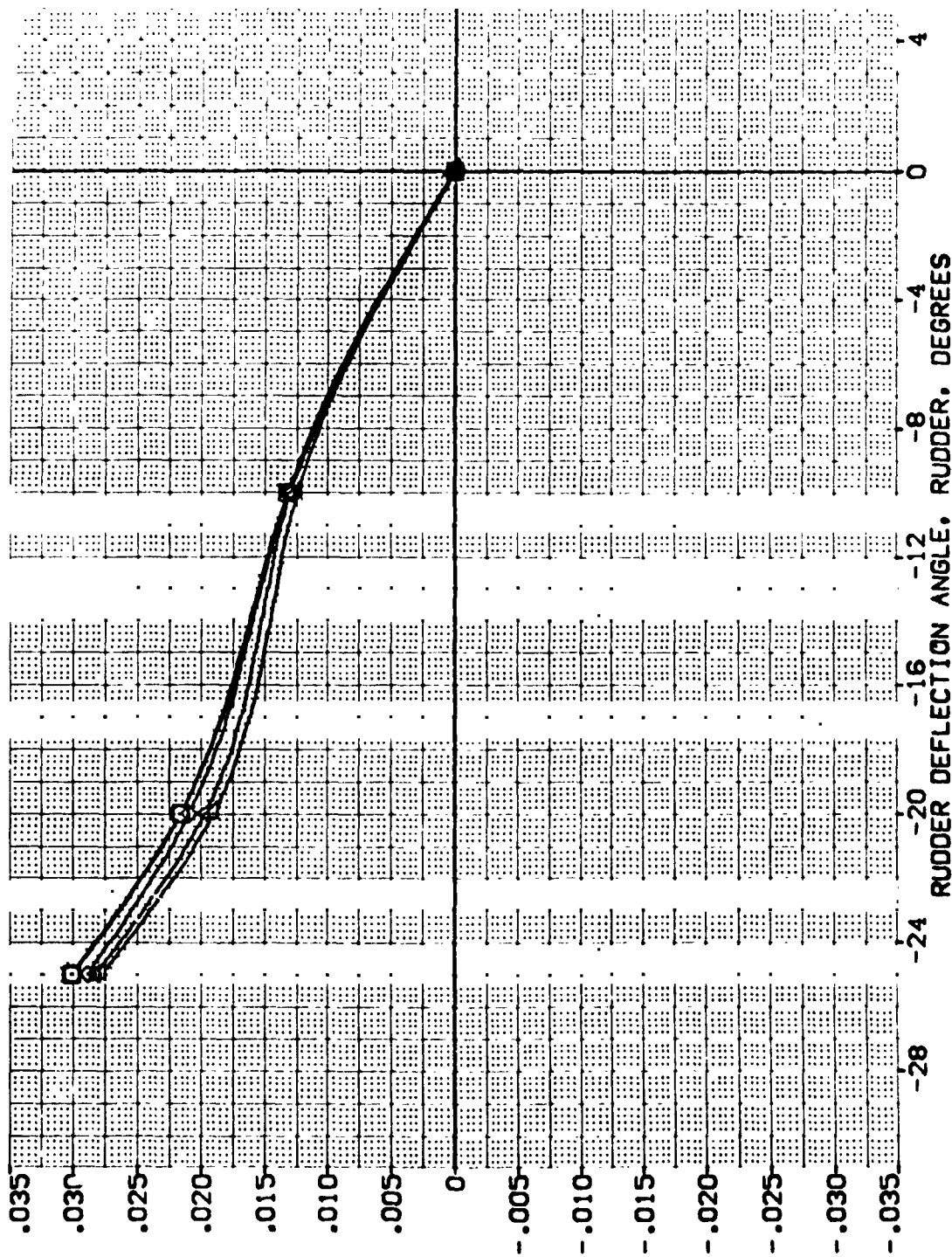


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDRK = 0 DEG.



0A110 B61C11F12M51W124E40V20R15X29 (DF5064)

SYMBOL	BETA	MACH	ELEVON	SPDRBK	PARAMETRIC VALUES	DATA SOURCE	DATASET	RUDDER	RUDDER	REF	REFERENCE INFORMATION
□	8.000	.200	.000	.000	ALPHA	10.000	DF5064	-25.000	REF	4.4119	50.FT.
◇	8.000	.000	.000	.000	AILRON	.000	DF5064	-10.000	LREF	19.2299	INCHES
△	10.000	.000	.000	.000	BOFLAP	-12.000	DF5067	-10.000	BREF	37.9359	INCHES
▽	12.000	.000	.000	.000					XREF	43.5974	INCHES
	14.000								YREF	.0000	INCHES
									ZREF	15.1875	INCHES
									SCALE	.0403	SCALE

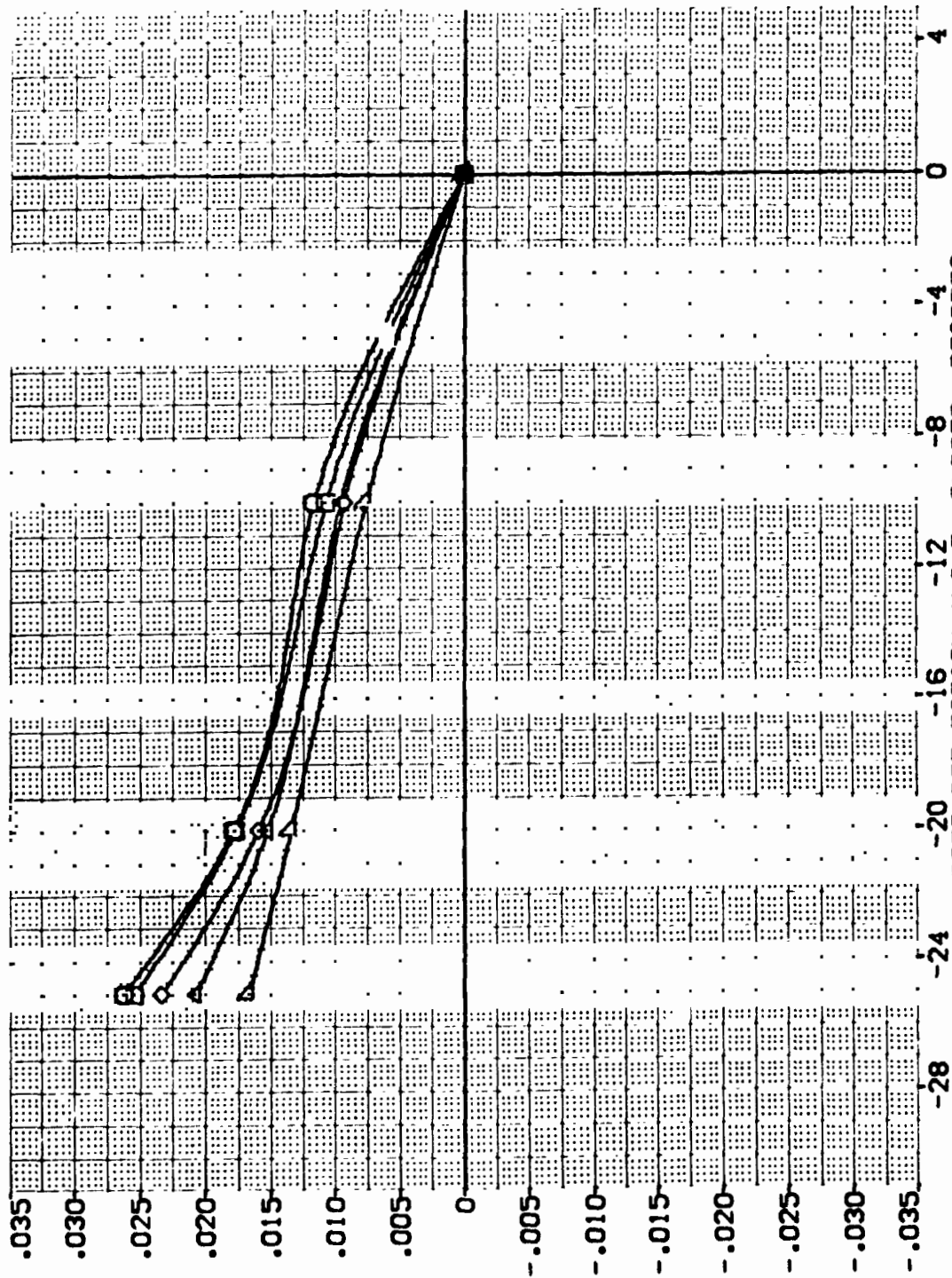


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDRBK = 0 DEG.

(DF5064)

0A110 B61C11F12M51W124E40V20R15X29

SYMBOL	BETA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	-14.000		.200 ALPHA	10.000 DATASET	90.FT.
□	-12.000	ELEVON	.000 AILRON	DF5064	19.2259
◇	-10.000	SPDBRK	.000 BDFLAP	DF5065	37.9359
△	-8.000			DF5067	43.5974
▽	-6.000				144P
					244P
					SCALE
					.0405

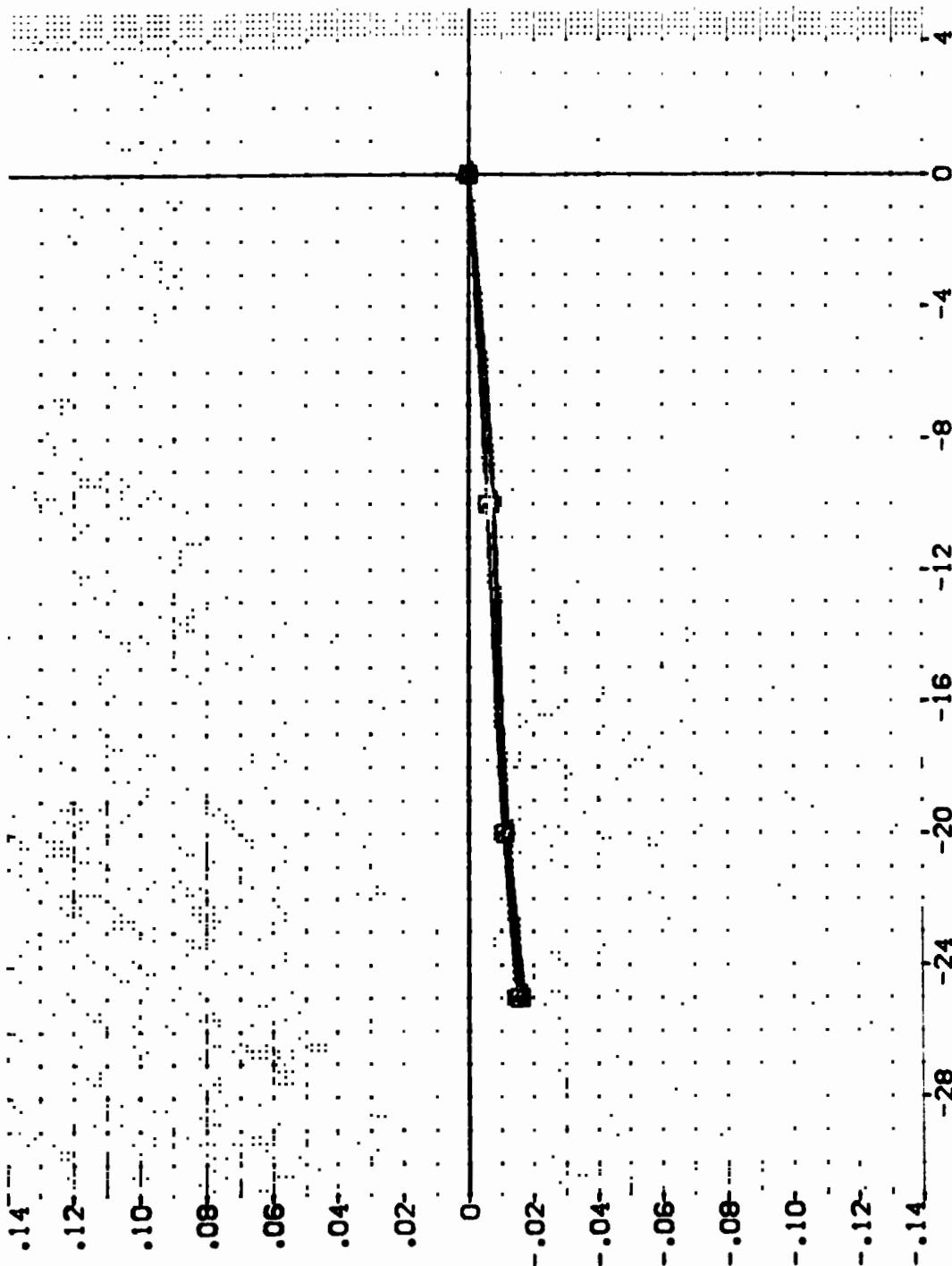


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDBRK = 0 DEG.

0A110 861C11F12M51W124E40V20R15X29 (DF5064)
 REFERENCE INFORMATION
 50 FT. 4.4119
 INCHES 19.2238
 INCHES 37.9358
 INCHES 43.5574
 INCHES 15.1675
 INCHES .0405
 SCALE
 DATA SOURCE
 RUDDER -20.000
 DATASET DF5068
 RUDDER -25.000
 DATASET DF5069
 RUDDER -10.000
 DATASET DF5067
 PARAMETRIC VALUES
 ALPHA .200
 AILRON .000
 BOFLAP .000
 MACH
 ELEVON
 SPDRK
 BETA
 -4.000
 -2.000
 .000
 2.000
 4.000

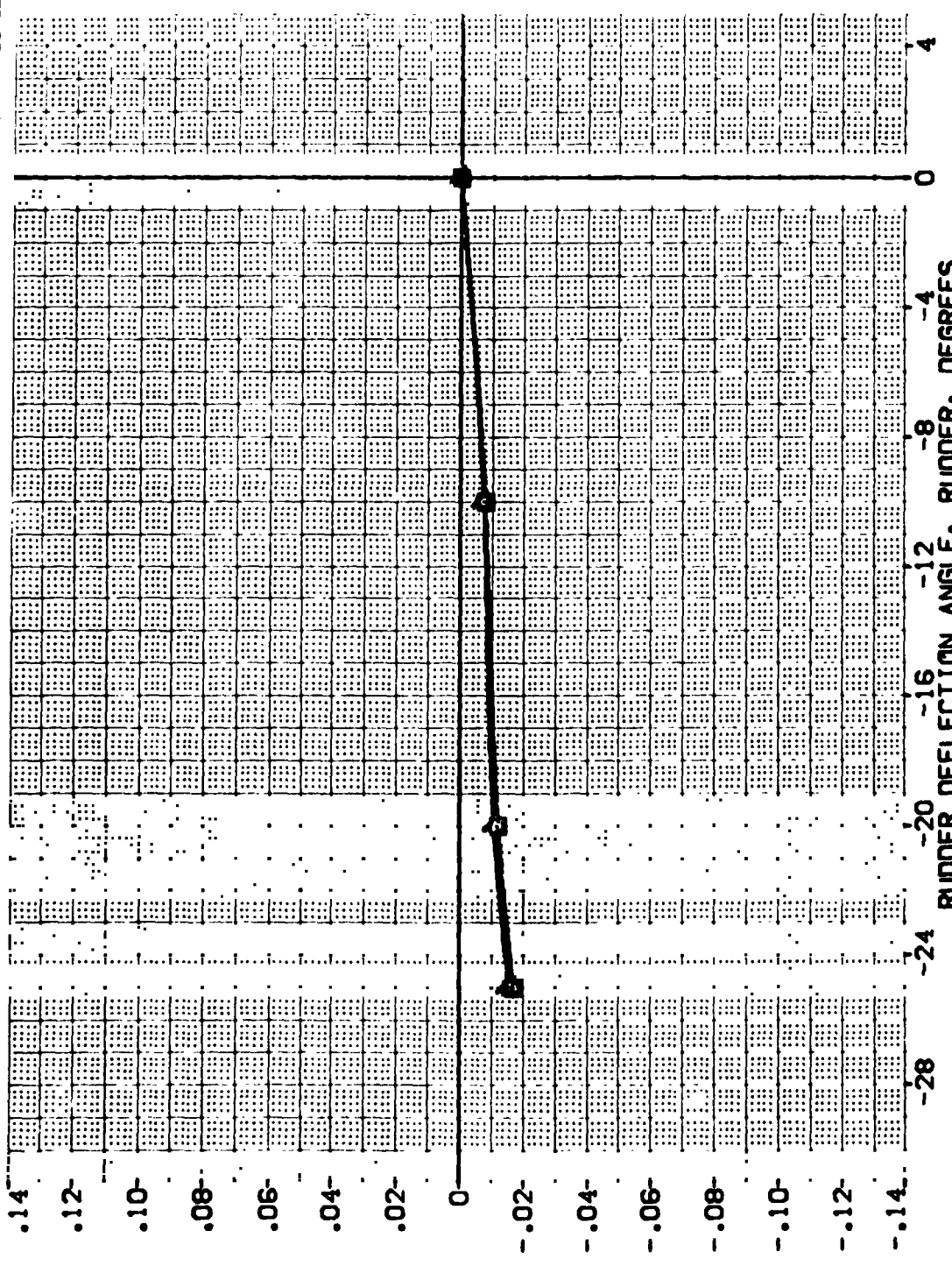


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDRK = 0 DEG.

0A110 861C11F12M51W124E40V20R15X29 (DF5064)

SYMBOL		BETA		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
○	□	6.000	MACH	.200	ALPHA	10.000	DATASET	SREF	50.17
◇	△	8.000	ELEVON	.000	AILRON	.000	DF5064	LREF	19.2259
		10.000	SPDRBK	.000	BDLAP	-12.000	DF5067	BREF	37.9359
		12.000				-25.000		XREF	43.5874
		14.000				-10.000		YREF	15.1875
								ZREF	.0405
								SCALE	SCALE

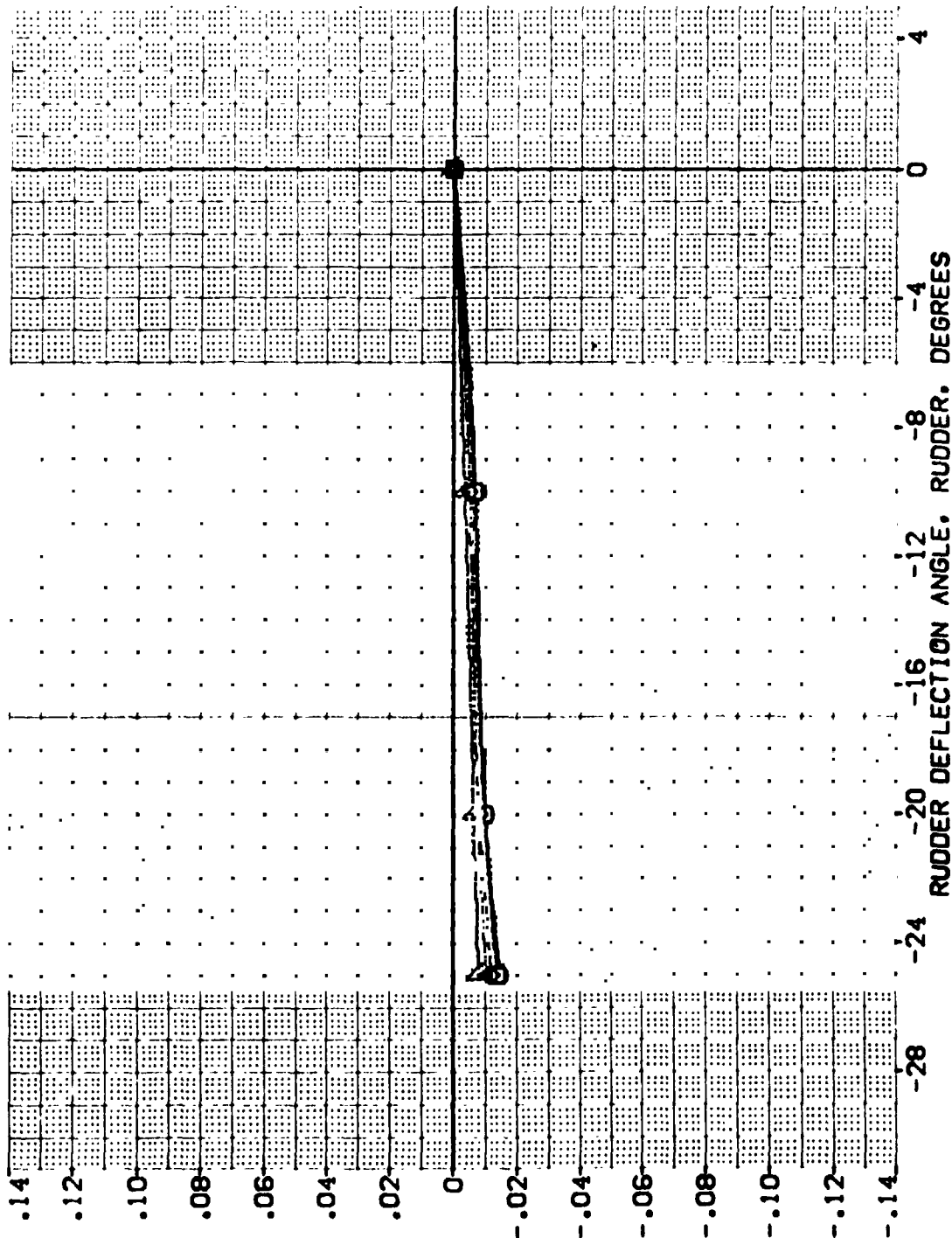


FIG 31 RUDDER EFFECTIVENESS, MODIFIED VERTICAL LE, SPDRBK = 0 DEG.

APPENDIX
TABULATED SOURCE DATA

Tabulations of plotted data are available on request from
Data Management Services

DATE 05 AUG 74

TABULATED SOURCE DATA - CA110

PAGE 1

CA110 B61C11F12M81M24E40 129

(RF5001) (08 MAY 74)

REFERENCE DATA

REF = 4.4119 SQ.FT. WREF = 43.5974 INCHES
LREF = 19.2299 INCHES WREF = .0000 INCHES
BREF = 37.9359 INCHES ZREF = 15.1875 INCHES
SCALE = .0455 SCALE

PARAMETRIC DATA

BETA = .000 BCFAP = -12.000
ELEVON = .000 AILRON = .000

RUN NO. 1/ 0 RML = 1.42 GRADIENT INTERVAL = -6.00/ 6.55

MACH	ALPHA	CL	COF	CLM	CN	CAF	CYN	CBL	CY	MCP/L	CAB
.200	-4.170	-2.5750	.03490	.04080	-.25930	.01614	.00000	-.00020	.00100	.71000	.03090
.200	-2.090	-1.15270	.02560	.03910	-.15360	.02006	.00000	-.00020	.00100	.74600	.02990
.200	-1.060	-1.0570	.02260	.03790	-.10610	.02069	.00010	-.00020	.00000	.78300	.02972
.200	-.510	-.05470	.02210	.03770	-.05470	.02217	.00000	-.00020	.00100	.90600	.02843
.200	1.000	-.00710	.02010	.03770	-.00670	.02023	.00010	-.00030	.00100	2.70900	.02921
.200	2.000	.03950	.02100	.03720	.04020	.01958	.00010	-.00010	.00000	.31100	.02846
.200	4.100	.13370	.02180	.03680	.13500	.01223	.00020	-.00030	.00000	.55100	.02921
.200	6.180	.23210	.02970	.03600	.23400	.00452	.00010	-.00040	.00100	.59500	.02766
.200	8.260	.33450	.04050	.03510	.33680	-.00800	.00010	-.00040	.00100	.61300	.02838
.200	10.370	.43490	.05670	.03700	.43800	-.02250	.00000	-.00020	.00100	.62100	.02954
.200	12.420	.54310	.08120	.03770	.54790	-.03752	.00000	-.00090	.00100	.62600	.03090
.200	14.530	.65730	.11520	.03530	.66520	-.05348	-.00010	-.00110	.00100	.63200	.03226
.200	16.610	.78670	.16100	.02440	.80000	-.07059	-.00030	-.00070	.00000	.64000	.03320
.200	18.700	.90420	.21580	.02050	.92570	-.08348	-.00060	-.00070	.00200	.64300	.03670
.200	20.800	1.01830	.28020	.01730	1.03140	-.09973	.00040	-.00100	.00000	.64600	.04013
.200	22.890	1.13790	.37980	.00130	1.19600	-.09286	.00140	-.00140	-.00200	.65100	.04547
.200	24.970	1.19600	.45160	.01190	1.27490	-.09567	.00130	.00260	-.00600	.64800	.04863
.200	27.020	1.24140	.52440	.02510	1.34420	-.09694	-.00070	.00740	-.00800	.64500	.05632
.200	29.000	1.17500	.55190	.06400	1.29510	-.08739	-.00180	.00240	.00300	.63300	.06397
.200	30.970	1.05900	.54980	.11060	1.19090	-.07355	-.00360	.00240	.00600	.61700	.07676
GRADIENT	.04721	-.00148	-.00148	-.00046	.04739	-.00039	.00002	-.00001	-.00012	.00965	-.00023

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TABULATED SOURCE DATA - OA110

PAGE 2

OA110 B61C11F12M51A24E40

X29

(RF5052) (50 MAY 74)

REFERENCE DATA

REF = 4.4119 94.FT. XMRP = 43.5974 INCHES
LEEF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9339 INCHES ZMRP = 15.1075 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 BDFLAP = -12.000
ELEVON = .000 AIRLON = .000

RUN NO. 2/ 5 RV/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLF	CLH	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.120	-.02790	.00580	.01920	-.02790	.00587	.03000	-.01730	.11800	.90500	.04201
.200	-12.100	-.03330	.00940	.02340	-.03330	.00938	.02560	-.01480	.10000	.90800	.03926
.200	-10.090	-.04090	.01350	.02700	-.04090	.01352	.02110	-.01230	.08400	.90000	.03589
.200	-8.070	-.04390	.01660	.03030	-.04390	.01659	.01880	-.00980	.06800	.85600	.03309
.200	-6.020	-.04860	.01750	.03380	-.04860	.01755	.01260	-.00730	.05100	.90800	.03264
.200	-4.050	-.05380	.02030	.03700	-.05380	.02034	.00830	-.00520	.03500	.89600	.02999
.200	-2.020	-.05430	.02180	.03730	-.05430	.02181	.00420	-.00260	.01900	.90300	.02843
.200	.020	-.05690	.02160	.03810	-.05690	.02158	.00000	-.00040	.00100	.89900	.02909
.200	2.050	-.05590	.02170	.03800	-.05590	.02168	-.00410	.00220	-.01400	.90200	.02933
.200	4.020	-.05220	.01990	.03850	-.05220	.01991	-.00850	.00470	-.03100	.90900	.03108
.200	6.050	-.04780	.01790	.03420	-.04780	.01793	-.01290	.00720	-.04800	.91300	.03257
.200	8.080	-.04290	.01380	.03180	-.04290	.01387	-.01720	.00990	-.06500	.92400	.03656
.200	10.100	-.03890	.01250	.02820	-.03890	.01250	-.02140	.01210	-.08200	.91800	.03699
.200	12.120	-.03410	.00940	.02430	-.03410	.00939	-.02580	.01460	-.09900	.91500	.03926
.200	14.150	-.02820	.00520	.02090	-.02820	.00522	-.03020	.01700	-.11600	.94500	.04201
.200	GRADIENT	.00009	-.00004	.00012	.00008	-.00005	-.00007	.00122	-.00816	.00123	.00015

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TABULATED SOURCE DATA - Q0110

PAGE 3

Q0110 061C11F12H051424E40

109

(RFS003) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 30.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 9.000 BCFAP = -12.000
 ELEVON = .900 AIRCON = .000

RUN NO. 3/ 0 RVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLW	CLM	CN	CAF	CYN	COL	CY	KCP/L	CAB
.200	-14.110	.20750	.01440	.01970	.20800	-.00422	.02910	-.00600	.11800	.61750	.54498
.200	-12.120	.20560	.01810	.02330	.20640	-.00041	.02470	-.00480	.10100	.61000	.54164
.200	-10.080	.19870	.01930	.02730	.19960	.00144	.02060	-.00430	.03300	.61150	.03731
.200	-8.030	.19270	.02150	.03020	.19390	.00416	.01640	-.00380	.06950	.59400	.03425
.200	-6.050	.18970	.02350	.03300	.19100	.00642	.01220	-.00300	.05300	.58600	.03202
.200	-4.040	.18490	.02580	.03510	.18640	.00823	.00800	-.00230	.03700	.58200	.02878
.200	-2.000	.18790	.02330	.03670	.18950	.00836	.00390	-.00130	.02000	.58000	.02979
.200	.010	.18300	.02600	.03720	.18460	.00956	.00000	-.00050	.00300	.57700	.02816
.200	2.050	.18160	.02460	.03730	.18310	.00829	-.00400	.00070	-.01500	.57000	.03009
.200	4.030	.18310	.02370	.03820	.18450	.00723	-.00810	.00170	-.03300	.56100	.03154
.200	6.060	.18780	.02330	.03340	.18910	.00646	-.01240	.00290	-.05000	.58700	.03225
.200	8.110	.19380	.02080	.03120	.19490	.00335	-.01670	.00330	-.06700	.59300	.03571
.200	10.100	.19600	.01840	.02800	.19690	.00064	-.02070	.00410	-.08200	.59900	.03629
.200	12.140	.19950	.01590	.02510	.20010	-.00235	-.02480	.00480	-.10000	.60500	.04223
.200	14.170	.20450	.01410	.02100	.20500	-.00425	-.02920	.00550	-.11500	.61400	.04435
GRADIENT	-.00749	-.00024	-.00024	.00004	-.00051	-.00020	-.00199	.00050	-.00867	-.00025	.00029

DATE 55 AUG 74

TABULATED SOURCE DATA - 0A110

PAGE 4

0A110 061C11F12M51M24E40 X29

(RF5004) (08 MAY 74)

REFERENCE DATA

REF = 4.119 94.FT. WRP = 43.9974 INCHES
LREF = 19.8299 INCHES YWRP = .0000 INCHES
BREF = 37.9359 INCHES ZWRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000

RUN NO. 4/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	COF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.110	.46680	.03320	.01710	.46880	-.02150	.03000	.00590	.11400	.63800	.04830
.200	-12.100	.46060	.03440	.02050	.46290	-.02920	.02570	.00480	.11000	.63500	.04390
.200	-10.090	.45390	.03490	.02450	.45640	-.02754	.02140	.00430	.08500	.63200	.04030
.200	-8.080	.44770	.03700	.02790	.45060	-.02434	.01660	.00370	.07000	.62900	.03634
.200	-6.030	.44800	.03700	.03190	.45090	-.02432	.01230	.00260	.05500	.62600	.03483
.200	-4.040	.44220	.03700	.03490	.44530	-.02329	.00790	.00180	.03800	.62300	.03199
.200	-2.010	.44190	.05990	.03690	.44500	-.02333	.00390	.00040	.02100	.62100	.03040
.200	.000	.43830	.05810	.03700	.43990	-.02122	.00000	-.00020	.00200	.62100	.02890
.200	2.040	.43780	.05620	.03700	.44080	-.02330	-.00390	-.00130	-.01600	.62100	.03103
.200	4.030	.43940	.05610	.03570	.44230	-.02366	-.00820	-.00230	-.03300	.62200	.03194
.200	6.090	.44270	.03540	.03320	.44530	-.02500	-.01240	-.00460	-.04900	.62400	.03581
.200	8.190	.44610	.03470	.02950	.44860	-.02627	-.01680	-.00510	-.06400	.62700	.03833
.200	10.130	.45230	.03310	.02500	.45470	-.02897	-.02170	-.00510	-.08100	.63100	.04173
.200	12.140	.45700	.03250	.02110	.45900	-.03042	-.02610	-.00570	-.09500	.63500	.04374
.200	14.140	.46620	.03050	.01690	.46770	-.03411	-.03030	-.00650	-.11100	.63800	.04924
GRADIENT	-.00048	-.00012	-.00051	.00010	-.00031	-.00054	-.00198	-.00051	-.00887	-.00010	.00003

DATE 15 AUG 74

TABULATED SOURCE DATA - CA110

PAGE 5

CA110 861C11F12M51M24E40 X29

(RF5005) (06 MAY 74)

REFERENCE DATA

REF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
REF = 19.2299 INCHES YMRP = .0000 INCHES
REF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 15.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000

RUN NO. 5/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

	DELTA	CL	CDF	CLM	CN	CAF	CYN	CBL	CV	XCP/L	CAB
.250	-14.110	.74470	.13840	.00510	.75450	-.06636	.03560	.01320	.10100	.64900	.05206
.250	-12.100	.73760	.13660	.01160	.74730	-.06617	.03010	.01130	.08900	.64600	.05063
.250	-10.075	.72900	.13710	.01800	.73900	-.06334	.02510	.00910	.07500	.64300	.04595
.250	-8.070	.73170	.13710	.02180	.74170	-.06420	.01980	.00610	.06400	.64100	.04379
.250	-6.010	.72550	.13750	.02630	.73580	-.06208	.01410	.00350	.05000	.63800	.03801
.250	-4.020	.71930	.13530	.03150	.72920	-.06248	.00870	.00170	.03600	.63600	.03528
.250	-2.010	.71260	.13560	.03220	.72280	-.06034	.00400	.00010	.02000	.63500	.03228
.250	.000	.71560	.13570	.03170	.72580	-.06101	-.00040	-.00040	.00300	.63600	.03325
.250	2.040	.71940	.13660	.03060	.72970	-.06122	-.00500	-.00160	-.01300	.63600	.03375
.250	4.030	.72420	.13790	.02970	.73410	-.06323	-.00980	-.00310	-.03100	.63700	.03615
.250	.360	.72610	.13680	.02620	.73620	-.06286	-.01500	-.00520	-.04400	.63900	.03878
.250	6.080	.73080	.13570	.02170	.74050	-.06524	-.01980	-.00710	-.06000	.64100	.04500
.250	10.100	.73390	.13710	.01630	.74380	-.06473	-.02500	-.00930	-.07400	.64400	.04754
.250	12.110	.73750	.13680	.01100	.74720	-.06601	-.03040	-.01170	-.08400	.64600	.04924
.250	14.160	.74490	.13480	.00600	.75380	-.06991	-.03570	-.01380	-.09700	.64900	.05449
.250	GRADIENT	.00082	.00011	-.00026	.00083	-.00012	-.00228	-.00056	-.00829	.00015	.00016

0A110 861C11F12M51M24E40

X29

(RF5056) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SQ. E

ALPHA = 20.000 BDFLAP = -12.000
 ELEVON = .000 AIRRON = .000

PARAMETRIC DATA

RUN NO. 6/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.130	1.06410	.30300	-.02050	1.10230	-.09528	.04320	.01510	.09100	.65900	.06102
.200	-12.130	1.04120	.29120	-.00370	1.07670	-.09788	.03490	.01790	.08000	.65300	.05803
.200	-10.080	1.01800	.28610	.00600	1.05320	-.09419	.02870	.01930	.06400	.65000	.05324
.200	-8.070	1.02300	.28690	.01120	1.05820	-.09531	.02350	.01650	.05100	.64800	.05067
.200	-6.030	1.01390	.28410	.01460	1.04870	-.09457	.01740	.01210	.04000	.64700	.04497
.200	-4.050	1.01610	.28430	.01750	1.05080	-.09526	.01130	.00730	.03100	.64600	.04016
.200	-2.030	1.01810	.28240	.01760	1.05210	-.09774	.00510	.00340	.01700	.64500	.04052
.200	.000	1.01900	.28050	.01850	1.04840	-.09835	.00010	-.00080	.00100	.64500	.03927
.200	2.030	1.01600	.28050	.01780	1.04940	-.09879	-.00480	-.00490	-.01500	.64500	.04029
.200	4.010	1.01510	.27980	.01860	1.04830	-.09904	-.01000	-.00900	-.03100	.64500	.04101
.200	6.040	1.03270	.28430	.01370	1.06640	-.10133	-.01750	-.01230	-.04100	.64700	.04758
.200	8.080	1.03510	.29140	.00390	1.07110	-.09551	-.02450	-.01330	-.04900	.65000	.05027
.200	10.090	1.04710	.29670	-.00310	1.08420	-.09493	-.03080	-.01460	-.06100	.65300	.05467
.200	12.130	1.05350	.29570	-.00930	1.08990	-.09821	-.03690	-.01520	-.07500	.65500	.05916
.200	14.160	1.07570	.30140	-.01960	1.11250	-.10098	-.04400	-.01600	-.08700	.65800	.06437
GRADIENT		-.00020	-.00034	.00012	-.00038	-.00043	-.00260	-.00203	-.00773	-.00010	.00007

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TABULATED SOURCE DATA - 0A110

PAGE 7

0A110 861C11F12H51M24E40V19R17X31

(RF5007) (08 MAY 74)

REFERENCE DATA

BREF = 4.4119 98.FT. YMRP = 43.9974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9339 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

BETA = .000 8DFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPD8RK = 25.000

PARAMETRIC DATA

RUN NO. 7/ 0 RNL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-4.150	-.26400	.04570	.04950	-.26660	.02633	-.00080	.00040	.00300	.72000	.03689
.200	-2.080	-.16560	.03340	.04820	-.16670	.02739	-.00090	.00040	.00300	.75000	.03689
.200	-1.040	-.11640	.03170	.04760	-.11690	.02937	-.00110	.00030	.00400	.80100	.03739
.200	-.020	-.06870	.02890	.04710	-.06870	.02886	-.00100	.00040	.00400	.90400	.03614
.200	1.010	-.02440	.02840	.04640	-.02390	.02884	-.00100	.00010	.00200	1.36600	.03708
.200	2.050	.02530	.02810	.04660	.02630	.02725	-.00110	.00040	.00300	.00000	.03702
.200	4.100	.12320	.03140	.04770	.12320	.02250	-.00110	.00020	.00300	.51100	.03530
.200	6.190	.21980	.03500	.04560	.22230	.01110	-.00120	.00010	.00400	.57600	.03708
.200	8.270	.31540	.04620	.04510	.31870	.00035	-.00100	.00010	.00300	.59900	.03585
.200	10.360	.41990	.06220	.04650	.42420	-.01431	-.00110	.00020	.00300	.61100	.03728
.200	12.460	.52580	.08760	.04700	.53230	-.02799	-.00120	-.00010	.00300	.61900	.03673
.200	14.530	.64040	.11790	.04510	.64950	-.04658	-.00140	-.00050	.00400	.62600	.04128
.200	16.600	.77000	.16650	.03440	.78340	-.06032	-.00170	.00010	.00400	.63600	.04569
.200	18.720	.89200	.21960	.02930	.91530	-.07836	-.00190	.00020	.00400	.64000	.04524
.200	20.810	1.00060	.28350	.02700	1.03610	-.09037	-.00120	-.00040	.00300	.64200	.04670
.200	22.930	1.12370	.36530	.00900	1.18510	-.08302	-.00110	-.00050	.00300	.64900	.03250
.200	25.010	1.20250	.46190	.01570	1.28500	-.08987	.00060	.00430	-.00800	.64700	.03756
.200	27.050	1.23550	.52980	.03340	1.34130	-.09016	-.00190	.00890	-.00600	.64200	.06380
.200	29.050	1.17990	.56560	.07130	1.30610	-.07849	-.00590	.00540	.01100	.63200	.06770
.200	30.970	1.04630	.55380	.12340	1.18210	-.06369	-.00610	-.00020	.02200	.61300	.07787
.200	GRADIENT	.04670	-.00164	-.00027	.04725	-.00039	-.00003	-.00002	-.00005	-.04136	-.00024

OA110 B61C11F12M51M24EADV19R17X31

(RF5008) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPOBRK = 25.000

RUN NO. 8/ 0 RV/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.150	-.03910	.00700	.02750	-.03910	.00707	-.01940	.00810	.25000	.91000	.04695
.200	-12.140	-.04080	.01170	.03010	-.04080	.01178	-.01940	.00930	.22100	.92300	.04382
.200	-10.120	-.04540	.01590	.03300	-.04540	.01591	-.01750	.00870	.18800	.91900	.04223
.200	-8.100	-.05110	.02090	.03610	-.05110	.02097	-.01440	.00770	.15100	.91200	.03970
.200	-6.070	-.05960	.02420	.04010	-.05960	.02428	-.01040	.00560	.11100	.89900	.03902
.200	-4.060	-.06410	.02710	.04290	-.06410	.02719	-.00670	.00370	.07400	.89800	.03779
.200	-2.030	-.06800	.02790	.04610	-.06800	.02797	-.00390	.00190	.04100	.90100	.03826
.200	.000	-.06900	.02880	.04700	-.06900	.02886	-.00100	.00040	.00400	.90200	.03731
.200	2.030	-.06930	.02820	.04600	-.06930	.02824	.00170	-.00090	-.03000	.89600	.03902
.200	4.030	-.06750	.02770	.04320	-.06750	.02775	.00310	-.00260	-.06800	.88800	.03907
.200	6.060	-.06240	.02350	.04040	-.06240	.02359	.00890	-.00470	-.10500	.89000	.04161
.200	8.080	-.05640	.01940	.03630	-.05640	.01946	.01330	-.00660	-.14500	.88800	.04218
.200	10.090	-.05150	.01550	.03290	-.05150	.01551	.01700	-.00790	-.18400	.88700	.04277
.200	12.110	-.04690	.01130	.03070	-.04690	.01131	.01810	-.00750	-.21700	.89300	.04441
.200	14.160	-.04230	.00860	.02880	-.04230	.00860	.01850	-.00670	-.24600	.90200	.04522
.200	GRADIENT	-.00038	.00007	.00003	-.00038	.00007	.00144	-.00076	-.01754	-.00123	.00016

DATE 55 AUG *

TABULATED SOURCE DATA - CM110

PAGE 9

CM110 B61C11F12M31A24E40V19R15X31

(RF5009) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0493 SCALE

ALPHA = 5.000 8DCLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPOBRK = 25.000

PARAMETRIC DATA

RUN NO. 9/ 0 RNU/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.160	.19780	.02980	.19820	-.00415	-.02150	.01950	.23200	.59600	.04794
.200	-12.120	.19170	.03160	.19260	.05164	-.02140	.01890	.22300	.59100	.04242
.200	-10.110	.18700	.03430	.19810	.00447	-.01890	.01680	.18800	.58500	.04187
.200	-8.080	.18450	.03650	.18590	.00787	-.01490	.01320	.15100	.58000	.04082
.200	-6.060	.17820	.03980	.17810	.01275	-.01090	.00970	.11400	.57500	.03745
.200	-4.060	.17290	.04290	.17500	.01578	-.00700	.00620	.07600	.56100	.03623
.200	-2.030	.16880	.04530	.17590	.01616	-.00400	.00310	.03900	.55400	.03690
.200	.000	.16730	.04570	.16970	.01846	-.00160	.00040	.00400	.55200	.03512
.200	2.030	.16920	.03160	.17130	.01636	.00160	-.00220	-.03000	.55500	.03792
.200	4.020	.17060	.03110	.17270	.01572	.00490	-.00530	-.06700	.56000	.03795
.200	6.090	.17630	.02560	.17790	.01229	.00830	-.00870	-.10600	.56800	.04073
.200	10.120	.18290	.02080	.18400	.00976	.01300	-.01220	-.14500	.57700	.04058
.200	12.110	.18650	.01910	.18740	.00232	.01750	-.01590	-.18700	.58600	.04287
.200	14.140	.19000	.01440	.19050	-.00274	.02010	-.01810	-.22100	.58900	.04248
GRADIENT	-.00021	-.00002	-.00002	-.00021	.00000	.00145	-.00140	-.01756	-.00005	.00022

OA110 861C11F12H51A24E40V19R17X31

(RF5010) (58 MAY 74)

REFERENCE DATA

SREF = 4.4119 50.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0455 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 25.000

RUN NO. 10/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CV	XCP/L	CAB
.200	-14.150	.45090	.05120	.02830	.45280	-.03052	-.02350	.03130	.25000	.62900	.04710
.200	-12.150	.44710	.03440	.02940	.44960	-.02673	-.02210	.02880	.21900	.62800	.04412
.200	-10.100	.44620	.05620	.03100	.44900	-.02473	-.01960	.02530	.18500	.62600	.04267
.200	-8.060	.43540	.03920	.03920	.43900	-.01984	-.01590	.02060	.15000	.62200	.03888
.200	-6.060	.43110	.06000	.03810	.43490	-.01822	-.01160	.01540	.11200	.61900	.03769
.200	-4.070	.42470	.06200	.04350	.42890	-.01513	-.00720	.01000	.07300	.61400	.03556
.200	-2.040	.42270	.06210	.04600	.42700	-.01459	-.00410	.00530	.03900	.61200	.03687
.200	-.310	.42100	.06350	.04680	.42590	-.01295	-.00110	.00020	.00300	.61100	.03593
.200	2.020	.41860	.06190	.04580	.42290	-.01409	.00160	-.00410	-.03100	.61200	.03774
.200	4.010	.42510	.06210	.04270	.42930	-.01504	.00450	-.00910	-.06700	.61500	.03795
.200	6.040	.42730	.05820	.03860	.43080	-.01932	.00870	-.01450	-.10700	.61900	.04097
.200	8.090	.43220	.03790	.03440	.43560	-.02049	.01320	-.01960	-.14600	.62300	.04129
.200	10.090	.43910	.05470	.03030	.44180	-.02489	.01770	-.02480	-.18500	.62600	.04470
.200	12.110	.44280	.05300	.02860	.44520	-.02725	.02070	-.02840	-.22100	.62800	.04519
.200	14.160	.44710	.04990	.02730	.44880	-.03114	.02260	-.03120	-.25500	.62900	.04776
GRADIENT	-.00017	-.00017	.00000	-.00009	-.00017	.00003	.00144	-.00235	-.01731	.00010	.00028

DATE 25 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 11

04110 861C11F12H51A24E40V19R15X29

(RF5011) (00 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

BETA =
 ELEVON =
 RUDDER =

.000 BOFLAP = -12.000
 .000 AILRON = .000
 .000 SPOBRK = 25.000

PARAMETRIC DATA

RUN NO. 11/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-4.180	-.26690	.04430	.05020	-.26950	.02478	-.00120	.00060	.00500	.72000	.03888
.200	-2.110	-.16580	.03460	.04820	-.16700	.02851	-.00100	.00050	.00300	.75800	.03802
.200	-1.060	-.11660	.03120	.04760	-.11720	.02906	-.00130	.00020	.00500	.80100	.03787
.200	-.050	-.07310	.02970	.04700	-.07310	.02967	-.00130	.00040	.00400	.88800	.03755
.200	.980	-.02210	.02870	.04700	-.02160	.02908	-.00120	.00050	.00400	1.45200	.03720
.200	2.020	.02530	.02780	.04670	.02630	.02694	-.00130	.00040	.00300	.00000	.03762
.200	4.090	.11740	.03090	.04610	.11930	.02248	-.00110	.00040	.00200	.50900	.03563
.200	6.160	.21760	.03620	.04640	.22030	.01261	-.00110	.00040	.00200	.57400	.03557
.200	8.240	.31770	.04720	.04540	.32120	.00121	-.00120	.00050	.00300	.60000	.03525
.200	10.340	.41930	.06280	.04680	.42380	-.01347	-.00120	.00030	.00300	.61100	.03654
.200	12.410	.52620	.08750	.04720	.53280	-.02763	-.00140	.00000	.00400	.61900	.03703
.200	14.500	.64030	.11690	.04510	.64960	-.04525	-.00130	-.00040	.00200	.62600	.03997
.200	16.600	.76960	.16590	.03470	.78490	-.06097	-.00180	.00020	.00200	.63500	.04106
.200	18.700	.89040	.21970	.02920	.91390	-.07737	-.00190	-.00010	.00300	.64000	.04443
.200	20.790	.99840	.28360	.02710	1.03400	-.08931	-.00130	-.00040	.00200	.64200	.04555
.200	22.880	1.12130	.36270	.01020	1.18190	-.08339	-.00190	-.00040	.00200	.64800	.05224
.200	24.980	1.20210	.46040	.01630	1.28410	-.09038	.00020	.00370	-.00700	.64700	.05789
.200	27.020	1.23740	.53190	.03260	1.34400	-.08837	-.00170	.00830	-.00500	.64300	.06215
.200	29.030	1.17930	.56550	.07310	1.30560	-.07797	-.00330	-.00050	.01700	.63100	.06617
.200	30.940	1.04640	.55520	.12310	1.18290	-.06182	-.00330	-.00320	.02600	.61300	.07476
.200		.04643	-.00161	-.00046	.04697	-.00028	-.00006	-.00002	-.00030	-.03952	-.00033

GRADIENT

CM110 B61C11, 2431424E40V19R15X29

(RF5012) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. YMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0465 SCALE

PARAMETRIC DATA

ALPHA = -5.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPOBRK = 25.000

RUN NO. 12/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.170	-27640	.03020	-27790	.00391	-.01830	-.00200	.25000	.69200	.04525
.200	-10.120	-28990	.03660	-29200	.01024	-.01750	.00240	.18900	.69700	.04381
.200	-8.100	-29950	.04040	-30190	.01304	-.01470	.00290	.15300	.75100	.04290
.200	-6.070	-30710	.04480	-30990	.01675	-.01090	.00220	.11400	.75400	.04151
.200	-4.060	-31130	.04860	-31440	.02019	-.00750	.00150	.07700	.70700	.03951
.200	-2.040	-31340	.05120	-31680	.02252	-.00410	.00090	.04000	.71000	.03865
.200	-.010	-31660	.05160	-32000	.02267	-.00100	.00070	.00400	.71000	.03875
.200	2.020	-31560	.05130	-31900	.02243	.00180	.00010	-.03000	.71000	.03909
.200	4.010	-31300	.04890	-31620	.02027	.00350	-.00030	-.06900	.70700	.04031
.200	6.040	-30320	.04440	-30600	.01674	.00940	-.00090	-.10800	.70400	.04282
.200	8.090	-29690	.04080	-29940	.01374	.01340	-.00170	-.14700	.70100	.04259
.200	10.100	-29100	.03720	-29310	.01068	.01680	-.00160	-.18500	.69800	.04255
.200	12.150	-28370	.03320	-28550	.00735	.01790	-.00020	-.21800	.69500	.04326
.200	14.170	-27660	.02840	-27810	.00326	.01790	.00290	-.24800	.69400	.04544
GRADIENT		-.00028	.00004	-.00029	.00000	.00158	-.00022	-.01792	.00000	.00010

DATE 05 AUG 74

TABULATED SOURCE DATA - 0A110

PAGE 13

0A110 B61C11F12M51M24E40V19R15X29

(RF5013) (08 MAY 74)

REFERENCE DATA

REF = 4.4119 30.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .005 BCFAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPDBRK = 25.000

RUN NO. 13/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-14.150	-.03940	.00800	.02800	-.03940	.00802	-.01880	.00770	.24800	.91300	.04665
.200	-12.140	-.04310	.01100	.02970	-.04310	.01107	-.01930	.00890	.22100	.90500	.04366
.200	-10.130	-.04810	.01630	.03320	-.04810	.01632	-.01740	.00870	.18700	.90600	.04205
.200	-8.090	-.05550	.02020	.03600	-.05550	.02027	-.01470	.00770	.15100	.89000	.04056
.200	-6.060	-.06180	.02390	.03980	-.06180	.02396	-.01050	.00570	.11200	.88900	.03983
.200	-4.080	-.06330	.02700	.04350	-.06330	.02698	-.00710	.00370	.07600	.90500	.03842
.200	-2.040	-.07010	.02950	.04630	-.07010	.02955	-.00410	.00210	.04000	.89400	.03689
.200	.000	-.07050	.02990	.04700	-.07050	.02988	-.00120	.00080	.00400	.89700	.03721
.200	2.020	-.07050	.02860	.04590	-.07050	.02861	.00100	.00100	.03000	.89200	.03878
.200	4.010	-.06840	.02760	.04350	-.06840	.02757	.00490	.00260	.06800	.88600	.03950
.200	6.050	-.06230	.02410	.04020	-.06230	.02408	.00880	.00450	.10500	.88900	.04109
.200	8.080	-.05880	.02020	.03590	-.05880	.02022	.01320	.00640	.14600	.87700	.04139
.200	10.110	-.05370	.01610	.03320	-.05370	.01609	.01680	.00800	.18500	.88000	.04234
.200	12.130	-.04840	.01120	.03130	-.04840	.01127	.01870	.00790	.22000	.89000	.04451
.200	14.170	-.04310	.00790	.02910	-.04310	.00797	.01870	.00690	.24800	.90100	.04593
GRADIENT	-.00052	-.00052	.00002	-.00002	-.00052	.00001	.00147	-.00078	-.01769	-.00198	.00020

0A110 861C11F12M51W424E4DV19R15X29

(RF5014) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 5.000 BCFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SFD8RK = 25.000

RUN NO. 14/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDX	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.160	.19670	.01510	.02980	.19720	-.00250	-.02130	.01920	.23100	.59600	.04700
.200	-12.130	.19360	.01920	.03120	.19450	.00183	-.02110	.01870	.22100	.59200	.04300
.200	-10.110	.18720	.02220	.03470	.18840	.00543	-.01900	.01650	.18800	.58400	.04169
.200	-8.090	.18290	.02490	.03670	.18440	.00847	-.01490	.01310	.15100	.57800	.04086
.200	-6.050	.17760	.02900	.03990	.17950	.01304	-.01080	.01000	.11200	.57000	.03773
.200	-4.090	.17180	.02970	.04290	.17380	.01432	-.00720	.00630	.07600	.56100	.03604
.200	-2.040	.16950	.03200	.04490	.17170	.01679	-.00420	.00320	.04000	.55500	.03678
.200	.000	.16400	.03290	.04690	.16630	.01818	-.00120	.00030	.00300	.54800	.03590
.200	2.010	.16300	.03140	.04320	.17040	.01631	.00150	-.00220	-.03100	.55400	.03825
.200	4.010	.16790	.02990	.04320	.16990	.01481	.00480	-.00530	-.06900	.55800	.03923
.200	6.070	.17170	.02920	.03960	.17360	.01364	.00840	-.00840	-.10600	.56800	.03958
.200	8.070	.17860	.02620	.03590	.18020	.01019	.01280	-.01220	-.14500	.57900	.04060
.200	10.100	.18210	.02230	.03360	.18340	.00603	.01760	-.01590	-.18700	.58400	.04147
.200	12.140	.18690	.01790	.03210	.18770	.00116	.01990	-.01780	-.22300	.58900	.04403
.200	14.160	.19000	.01420	.02950	.19050	-.00280	.02090	-.01890	-.25500	.59500	.04644
GRADIENT	-.00045	-.00001	-.00001	.00005	-.00045	.00003	.00147	-.00141	-.01783	-.00035	.00019

DATE 55 AUG 74

TABULATED SOURCE DATA - OA110

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OA110 861C11F12M51A24E40V19R15X29

(MF5015) (06 MAY 74)

REFERENCE DATA

REF = 4.4119 84.FT. YMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BOFLAP = -12.000
 ELEVOM = .000 AILRON = .000
 RUDDER = .000 SPOBRK = 25.000

RUN NO. 15/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.150	.44840	.04960	.02810	.45000	-.03152	-.02320	.03110	.24900	.62900	.04830
.200	-12.140	.44320	.05290	.02960	.44750	-.02778	-.02200	.02830	.21900	.62700	.04566
.200	-10.110	.43990	.05630	.03200	.44290	-.02336	-.02000	.02510	.18600	.62500	.04174
.200	-8.100	.43690	.05910	.03500	.44020	-.02111	-.01610	.02090	.14900	.62200	.04008
.200	-6.060	.42960	.06000	.03770	.43340	-.01785	-.01180	.01510	.11200	.62000	.03764
.200	-4.050	.42560	.06200	.04310	.42980	-.01516	-.00720	.01000	.07400	.61500	.03628
.200	-2.030	.42230	.06320	.04590	.42680	-.01345	-.00430	.00480	.03900	.61200	.03581
.200	-.010	.41940	.06380	.04660	.42400	-.01228	-.00140	.00030	.00500	.61100	.03196
.200	2.020	.42070	.06260	.04510	.42510	-.01373	.00150	-.00445	-.03200	.61300	.03717
.200	4.010	.42220	.06160	.04310	.42650	-.01494	.00410	-.00930	-.06700	.61400	.03784
.200	6.070	.42820	.05990	.03730	.43200	-.01776	.00830	-.01450	-.10500	.62000	.03976
.200	8.090	.43360	.05680	.03410	.43670	-.02176	.01300	-.02000	-.14600	.62300	.04251
.200	10.100	.43640	.05530	.03040	.43930	-.02375	.01750	-.02470	-.18500	.62600	.04369
.200	12.120	.44200	.05240	.02810	.44430	-.02760	.02060	-.02830	-.22100	.62800	.04592
.200	14.180	.44800	.05000	.02690	.44970	-.03102	.02220	-.03110	-.25400	.63000	.04792
GRADIENT		-.00042	-.00007	-.00004	-.00041	.00001	.00141	-.00237	-.01750	-.00005	.00023

OA110 861C11F12M51M24E40V19R15X29

(RF5016) (08 MAY 74)

REFERENCE DATA

REF = 4.4119 SQ.FT. YMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0550 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0495 SCALE

PARAMETRIC DATA

ALPHA = 15.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPOBRK = 25.000

RUN NO. 16/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.150	.73300	.13280	.01400	.74180	-.06870	-.01980	.03930	.23800	.64500	.05440
.200	-12.160	.73240	.13580	.01840	.74190	-.06574	-.01860	.03510	.20800	.64500	.05047
.200	-10.120	.72790	.13680	.02140	.73790	-.06344	-.01930	.03110	.18300	.64100	.04455
.200	-8.110	.72420	.13790	.02700	.73460	-.06134	-.01640	.02420	.15000	.63800	.04364
.200	-6.070	.71340	.13990	.03430	.72480	-.05653	-.01170	.01690	.11100	.63400	.03865
.200	-4.080	.70380	.13950	.03970	.71550	-.05428	-.00770	.01040	.07500	.63100	.03799
.200	-2.040	.70420	.14080	.04200	.71610	-.05312	-.00450	.00450	.04000	.63000	.03891
.200	-.010	.70190	.14070	.04230	.71390	-.05258	-.00170	.00010	.00400	.63000	.04032
.200	2.020	.70450	.14100	.04020	.71650	-.05301	.00090	-.00450	-.03100	.63100	.04036
.200	4.020	.70850	.14080	.03750	.72030	-.05426	.00390	-.01030	-.06700	.63500	.04032
.200	6.030	.71460	.14010	.03280	.72600	-.05669	.00750	-.01680	-.10400	.63500	.04292
.200	8.100	.72510	.13870	.02550	.73570	-.06087	.01320	-.02400	-.14700	.63900	.04473
.200	10.100	.72560	.13720	.02010	.73580	-.06239	.01670	-.03030	-.18500	.64200	.04497
.200	12.120	.73600	.13500	.01550	.74520	-.06738	.01880	-.03620	-.21700	.64400	.05049
.200	14.160	.73840	.13320	.01250	.74710	-.06975	.01950	-.04060	-.24600	.64500	.05484
GRADIENT		.00046	.00014	-.00050	.00049	.00001	.00141	-.00249	-.01752	.00025	.00032

0A110 061C11F12nd11d24E40V19r15x29

(RF3017) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 66.FT. WARP = 43.5974 INCHES
LREF = 19.2299 INCHES WARP = .0000 INCHES
BREF = 37.9359 INCHES ZWAP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 20.000 BOFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPCBRK = 25.000

RUN NO. 17/ 0 RMVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACM	BETA	QL	QDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	1.05190	.29590	-.01290	1.06410	-.09712	-.01370	.04290	.23600	.65600	.05900
.200	-12.120	1.03220	.29980	.00260	1.06790	-.09577	-.01850	.04320	.21100	.65100	.05140
.200	-10.040	1.01770	.26820	.01030	1.05300	-.09365	-.01950	.04270	.18000	.64800	.04914
.200	-8.090	1.01750	.26870	.01540	1.05370	-.09138	-.01390	.03490	.13900	.64600	.04890
.200	-6.040	1.00750	.26880	.02240	1.04420	-.08747	-.00970	.02620	.10200	.64400	.04337
.200	-4.070	1.00300	.26660	.02700	1.03930	-.08794	-.00670	.01680	.06800	.64200	.04219
.200	-2.020	1.00470	.26740	.02710	1.04130	-.08796	-.00400	.00790	.03500	.64200	.04431
.200	-.010	1.00120	.26490	.02760	1.03710	-.08905	-.00130	-.00220	.00400	.64200	.04558
.200	2.020	1.00110	.26260	.02730	1.03630	-.09117	.00110	-.00810	-.03000	.64200	.04708
.200	4.030	.99730	.26030	.02760	1.03180	-.09190	.00350	-.01660	-.06500	.64200	.04577
.200	6.060	1.01330	.26690	.01850	1.04920	-.09146	.00610	-.02480	-.10100	.64500	.04820
.200	8.090	1.03340	.29370	.00720	1.07050	-.09248	.01010	-.03150	-.14000	.64900	.05078
.200	10.130	1.03810	.29360	.00420	1.07470	-.09425	.01320	-.03850	-.18300	.65000	.05583
.200	12.140	1.05070	.29600	-.00300	1.06670	-.09645	.01630	-.04150	-.21700	.65300	.05265
.200	14.190	1.06030	.29720	-.01330	1.05670	-.09903	.01540	-.04330	-.24600	.65700	.05855
GRADIENT		-.00074	-.00048	.00007	-.00101	-.00555	.00126	-.00409	-.01635	-.00000	-.00549

04110 061C11F12W51W24E40V19R15X29

(RF5018) (08 MAY 74)

REFERENCE DATA

BAEF = 4.4119 54.FT. WARP = 43.5974 INCHES
 LDEF = 19.2299 INCHES WARP = .0000 INCHES
 BDEF = 37.9359 INCHES WARP = 15.1875 INCHES
 SCALE = .5405 SCALE

BETA = .000 BDFLAP = -12.000
 ELEVON = 5.000 AILRON = .000
 RUDDER = .000 SFBRK = 25.000

PARAMETRIC DATA

RUN NO. 18/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.09/ 6.05

MACH	ALPHA	CL	CD	CLM	CN	CAP	CYN	CBL	CY	KCP/L	CAB
.200	-4.110	-.15690	.03830	-.00050	-.15820	.02700	-.00120	.00080	.00300	.63000	.04149
.200	-2.050	-.05870	.03130	-.00180	-.05980	.02920	-.00120	.00060	.00500	.64000	.04115
.200	-.990	-.05840	.03010	-.00210	-.00890	.02999	-.00120	.00060	.00400	.56100	.04097
.200	.010	.03610	.02940	-.00230	.03810	.02944	-.00100	.00050	.00300	.67800	.04119
.200	1.040	.06430	.03090	-.00290	.06490	.02943	-.00120	.00070	.00400	.66500	.03990
.200	2.070	.12930	.03160	-.00340	.13030	.02996	-.00120	.00030	.00300	.66100	.04523
.200	4.160	.22770	.03760	-.00410	.22980	.02101	-.00130	.00010	.00400	.65800	.03945
.200	6.240	.32770	.04760	-.00500	.33100	.01171	-.00140	.00000	.00500	.63700	.03815
.200	8.340	.42760	.06070	-.00530	.43130	-.00186	-.00140	.00000	.00500	.65600	.03892
.200	10.390	.52480	.08090	-.00570	.53060	-.01500	-.00130	.00000	.00300	.63400	.03859
.200	12.490	.63590	.10830	-.00280	.64430	-.03174	-.00140	-.00020	.00400	.63300	.04084
.200	14.550	.74380	.14530	-.00520	.75630	-.04634	-.00160	-.00050	.00400	.63400	.04163
.200	16.670	.88080	.19750	-.01730	.90030	-.06335	-.00190	-.00040	.00500	.63900	.04401
.200	18.770	.99440	.25590	-.02040	1.02390	-.07764	-.00210	-.00090	.00500	.63900	.04561
.200	20.850	1.10340	.32340	-.02260	1.14630	-.09047	-.00110	-.00070	.00200	.63900	.04960
.200	22.960	1.22900	.43430	-.04200	1.30110	-.07986	-.00120	-.00190	.00300	.66400	.05855
.200	25.040	1.29460	.50870	-.02900	1.38820	-.06898	.00000	.00230	.00500	.63900	.06118
.200	27.060	1.29640	.57020	-.00320	1.41420	-.06233	-.00280	.01020	-.00600	.63700	.06677
.200	29.030	1.19490	.58020	.00300	1.32800	-.06981	-.00600	-.00270	.02100	.63700	.07437
.200	30.970	1.07110	.57820	.09960	1.21490	-.05717	-.00610	-.00090	.02100	.62100	.08192
.200	GRADIENT	.04630	-.00003	-.00042	.04663	-.00067	-.00001	-.00058	-.00018	.05403	-.00026

DATE 55 AUG 74 TABULATED SOURCE DATA - 0A110

(RF5019) (0A MAY 74)

0A110 861C11F12M51W424E40V19R15X29

PARAMETRIC DATA

BETA = .050 BCFLAP = -12.500
ELEVON = 15.070 AILRON = .000
RUDDER = .000 SPDRBK = 25.000

REFERENCE DATA

SREF = 4.4119 98.FT. YMRP = 43.3974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1675 INCHES
SCALE = .0405 SCALE

RUN NO. 19/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	ALPHA	CL	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-3.990	.04950	-.09670	.04660	.04376	-.00090	.00090	.00300	1.41600	.04811
.200	-2.960	.09960	-.02310	.09750	.04575	-.00080	.00100	.00300	1.02300	.04758
.200	-1.930	.15030	-.09910	.14880	.04686	-.00100	.00130	.00500	.89700	.04767
.200	-.980	.19410	-.09880	.19340	.04721	-.00090	.00120	.00300	.84000	.04713
.200	.130	.24240	-.09870	.24250	.04604	-.00110	.00100	.00300	.80300	.04707
.200	1.160	.28900	-.10030	.29000	.04504	-.00110	.00100	.00400	.77900	.04617
.200	2.200	.33290	-.10120	.33480	.04239	-.00130	.00070	.00300	.76300	.04596
.200	4.260	.42510	-.10340	.42920	.03547	-.00120	.00080	.00400	.73800	.04437
.200	6.360	.52550	-.10370	.53160	.02929	-.00130	.00070	.00500	.72300	.04391
.200	8.410	.62290	-.10370	.63160	.01297	-.00130	.00050	.00500	.71200	.04363
.200	10.530	.73580	-.10510	.74790	-.00249	-.00140	.00070	.00400	.70300	.04466
.200	12.600	.84650	-.10950	.86360	-.01697	-.00160	.00050	.00400	.69800	.04593
.200	14.680	.95760	-.11090	.98140	-.03252	-.00170	.00070	.00400	.69300	.04715
.200	16.780	1.08650	-.12210	1.12010	-.04894	-.00110	-.00080	.00300	.69200	.05009
.200	18.870	1.18970	-.12130	1.23600	-.06235	-.00080	.00070	.00300	.68800	.05188
.200	20.960	1.28040	-.11970	1.34490	-.06853	-.00080	.00070	.00100	.68400	.05663
.200	23.070	1.41430	-.11130	1.51330	-.05644	-.00220	-.00450	.00500	.68600	.06234
.200	25.120	1.44720	-.11130	1.56860	-.06372	.00140	.00670	-.01500	.67800	.06842
.200	27.130	1.38070	-.05980	1.52270	-.05632	-.00400	.01890	-.01800	.66600	.07371
.200	29.020	1.20020	.01840	1.34960	-.04136	-.00850	-.00460	.03400	.64700	.06212
.200	31.020	1.11950	.05220	1.28440	-.03645	-.00540	-.00120	.02000	.63700	.08909
.200	GRADIENT	.04538	-.00048	.04619	-.00096	-.00004	-.00004	.00014	-.06589	-.00042

0A110 861C11F12M51W424E40V19R15X29

(RF5020) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SE.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 E-FLAP = -12.000
ELEVON = -20.000 AILERON = .000
RUDDER = .000 SPOBRK = 25.000

RUN NO. 20/ 0 RIN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-4.380	-.66680	.11150	.22580	-.67340	.06023	-.00100	.00090	.00300	.77500	.02699
.200	-2.320	-.56990	.08600	.22270	-.57290	.06293	-.00100	.00050	.00400	.79500	.02811
.200	-1.290	-.52030	.07520	.22130	-.52190	.06341	-.00070	.00060	.00100	.80800	.02868
.200	-.220	-.45680	.06550	.21590	-.45900	.06375	-.00070	.00080	.00200	.82500	.02728
.200	.760	-.45940	.05710	.21410	-.40850	.06272	-.00090	.00040	.00200	.84500	.02890
.200	1.850	-.35080	.05140	.21250	-.35900	.06295	-.00090	.00040	.00200	.87000	.02797
.200	3.900	-.28250	.04030	.21060	-.25910	.05808	-.00090	.00080	.00200	.95100	.02912
.200	5.970	-.17530	.03480	.21160	-.16880	.05266	-.00080	.00070	.00000	1.11300	.02788
.200	8.040	-.08080	.03180	.21400	-.07560	.04283	-.00070	.00060	.00100	1.69300	.02966
.200	10.100	.01350	.03610	.21800	.01970	.03318	-.00090	.00050	.00200	-3.41900	.02915
.200	12.200	.11090	.04450	.22360	.11790	.02003	-.00080	.00020	.00100	-.04600	.03127
.200	14.260	.21960	.06350	.22360	.22850	.00733	-.00100	.00010	.00300	.29200	.03192
.200	16.330	.32800	.08900	.22300	.33980	-.00687	-.00120	.00020	.00300	.41000	.03426
.200	18.470	.45240	.12860	.21700	.46980	-.02129	-.00130	.00160	.00300	.48200	.03455
.200	20.560	.56000	.17350	.21880	.58530	-.03421	-.00130	.00060	.00300	.51400	.03823
.200	22.620	.66020	.22480	.21910	.69590	-.04648	.00060	.00090	.00200	.53600	.04051
.200	24.750	.77610	.30050	.20700	.83060	-.05219	.00070	.00470	-.00900	.56000	.04449
.200	26.800	.85670	.36630	.20880	.93080	-.05761	.00070	.00160	-.00200	.56900	.04824
.200	28.880	.90780	.43750	.21290	1.00620	-.05547	-.00180	.00300	.00300	.57400	.05190
.200	30.880	.85930	.46430	.24440	.97580	-.04264	-.00610	.00560	.01300	.55900	.05610
GRADIENT	.04626	-.00729	-.00156	-.00156	.04931	-.00077	.00001	-.00001	-.00025	.03065	.00009

DATE 25 AUG 74

TABULATED SOURCE DATA - CA110

PAGE 21

CA110 B61C11F12M51M24E40V19R15X29

(RF5021) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. YMRP = 43.9974 INCHES
 LREF = 19.2297 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES YMRP = 15.1075 INCHES
 SCALE = .0465 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPOBRK = .000

RUN NO. 21/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.120	.45140	.04750	.02460	.45260	-.03434	-.01830	.02880	.23800	.63200	.04395
.200	-12.110	.44940	.05000	.02550	.45110	-.03135	-.01790	.02680	.21100	.63100	.04155
.200	-10.080	.44510	.05320	.02780	.44740	-.02757	-.01640	.02350	.17800	.62900	.03851
.200	-8.090	.44080	.05590	.02980	.44370	-.02416	-.01330	.01930	.14500	.62700	.03572
.200	-6.060	.43720	.05620	.03380	.44020	-.02321	-.00950	.01430	.10800	.62300	.03485
.200	-4.050	.43110	.05800	.03800	.43460	-.02027	-.00610	.00960	.07200	.61900	.03360
.200	-2.020	.42820	.05920	.04050	.43190	-.01857	-.00370	.00480	.03700	.61700	.03341
.200	-.010	.42600	.06000	.04110	.42980	-.01740	-.00100	.00540	.00200	.61600	.03304
.200	2.020	.42420	.05770	.04080	.42790	-.01816	.00160	-.00420	-.03200	.61700	.03350
.200	4.020	.42720	.05770	.03820	.43060	-.01977	.00370	-.00890	-.06700	.61900	.03379
.200	6.050	.43030	.05570	.03400	.43330	-.02236	.00690	-.01370	-.10400	.62300	.03514
.200	8.060	.43580	.05480	.03000	.43850	-.02424	.01020	-.01840	-.14100	.62600	.03681
.200	10.100	.44320	.05220	.02650	.44530	-.02815	.01410	-.02290	-.17900	.63000	.04054
.200	12.120	.44530	.05030	.02520	.44710	-.03044	.01680	-.02640	-.21500	.63100	.04132
.200	14.170	.44870	.04770	.02420	.45000	-.03362	.01750	-.02860	-.24500	.63200	.04342
GRADIENT	-.00059	-.00005	-.00005	.00064	-.00060	.00007	.00123	-.00223	-.01720	-.00000	.00002

0A110 861C11F12M51M24E40V19R15X29

(RF5022) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.59/4 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -10.000 SPODERK = .000

RUN NO. 22/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.130	.45220	.04730	.02370	.45340	-.03479	-.00920	.02360	.22200	.63200	.04203
.200	-12.120	.44890	.05100	.02520	.45060	-.03057	-.00770	.02110	.19100	.63100	.03938
.200	-10.100	.44370	.05340	.02770	.44800	-.02756	-.00400	.01670	.15500	.62900	.03831
.200	-8.080	.43660	.05670	.03150	.43970	-.02269	-.00060	.01200	.11900	.62500	.03560
.200	-6.040	.43500	.05890	.03570	.43850	-.02017	.00390	.00650	.08000	.62200	.03438
.200	-4.050	.42820	.06110	.03940	.43320	-.01698	.00710	.00150	.04400	.61800	.03311
.200	-2.020	.42820	.06280	.04040	.43250	-.01506	.00960	-.00300	.00900	.61700	.03313
.200	.000	.42290	.06230	.04260	.42750	-.01467	.01230	-.00740	-.02500	.61500	.03368
.200	2.040	.42500	.06200	.04030	.42930	-.01529	.01470	-.01200	-.06100	.61700	.03475
.200	4.030	.42900	.06080	.03730	.43300	-.01722	.01640	-.01640	-.09300	.62000	.03566
.200	6.060	.43180	.05830	.03380	.43530	-.02014	.01800	-.02010	-.12600	.62300	.03745
.200	8.080	.43820	.05570	.03080	.44110	-.02395	.02090	-.02460	-.16400	.62600	.04089
.200	10.090	.44560	.05370	.02840	.44840	-.02531	.02370	-.02860	-.19800	.62800	.04294
.200	12.100	.44630	.05240	.02680	.44850	-.02861	.02650	-.03180	-.23500	.63000	.04447
.200	14.150	.44650	.05090	.02730	.44840	-.03020	.02470	-.03240	-.25900	.62900	.04748
GRADIENT	-.00018	-.00007	-.00007	-.00021	-.00018	-.00003	.00117	-.00222	-.01701	.00020	.00033

DATE 55 AUG 74

TABULATED SOURCE DATA - OA110

PAGE 23

OA110 B01C11F12M51M24E40V19R15X29

(RF5023) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 90.FT. YMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1975 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = -20.000 SPCBRK = .000

RUN NO. 23/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	.45060	.05090	.45240	-.03091	.00230	.01720	.19700	.63000	.04282
.200	-12.120	.44630	.05350	.44870	-.02757	.00470	.01390	.16400	.62800	.04236
.200	-10.100	.43930	.05680	.44240	-.02299	.00780	.00970	.12900	.62500	.04065
.200	-8.080	.43360	.06140	.43760	-.01743	.01230	.00450	.09100	.62100	.03848
.200	-6.060	.42740	.06310	.43180	-.01455	.01640	-.00070	.05200	.61700	.03836
.200	-4.050	.42560	.06580	.43050	-.01167	.02050	-.00570	.01400	.61300	.03773
.200	-2.030	.41910	.06830	.42460	-.00798	.02280	-.01050	-.01900	.61000	.03631
.200	.000	.41640	.06860	.42200	-.00717	.02480	-.01460	-.05350	.61000	.03608
.200	2.020	.41570	.06760	.42110	-.00800	.02630	-.01840	-.09600	.61100	.03654
.200	4.010	.42390	.06450	.42860	-.01254	.02740	-.02270	-.11800	.61400	.03889
.200	6.060	.42610	.06340	.43060	-.01405	.02810	-.02580	-.14800	.61700	.03920
.200	8.080	.43110	.06020	.43490	-.01810	.02930	-.02890	-.18200	.62100	.04314
.200	10.100	.43720	.05750	.44040	-.02188	.03310	-.03320	-.22100	.62400	.04665
.200	12.120	.44080	.05830	.44410	-.02177	.03280	-.03430	-.24900	.62500	.04698
.200	14.140	.44280	.05650	.44580	-.02395	.03130	-.03540	-.27500	.62500	.04964
.200	GRADIENT	-.00034	-.00016	-.00037	-.00008	.00086	-.00208	-.01641	.00015	.00013

0A110 861C11F12M51W124E40V19R15X29

(RF5024) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -25.000 SPOBRK = .000

RUN NO. 24/ 0 RIN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.130	.44780	.05390	.02990	.45020	-.02743	.00740	.01410	.18700	.82700	.04444
.200	-12.130	.44560	.05800	.03280	.44880	-.02300	.01020	.01070	.15400	.82500	.04307
.200	-10.110	.43780	.06240	.03690	.44190	-.01724	.01390	.00630	.11700	.82100	.04125
.200	-8.090	.42690	.06490	.04170	.43160	-.01278	.01840	.00100	.07700	.81600	.04105
.200	-6.060	.42080	.06830	.04600	.42620	-.00827	.02260	-.00420	.03900	.81200	.03926
.200	-4.040	.41720	.07050	.05010	.42310	-.00545	.02620	-.00900	.00200	.80800	.03890
.200	-2.030	.41360	.07110	.05280	.41970	-.00424	.02830	-.01340	.00300	.80500	.03960
.200	-.020	.41360	.07260	.05250	.41990	-.00266	.03020	-.01730	-.06400	.80600	.03821
.200	2.020	.41640	.07150	.05090	.42250	-.00426	.03220	-.02160	-.09800	.80700	.03867
.200	4.030	.42030	.06900	.04740	.42600	-.00749	.03280	-.02530	-.12900	.81100	.03970
.200	6.050	.42410	.06650	.04370	.42910	-.01069	.03350	-.02860	-.16100	.81400	.04057
.200	8.080	.43150	.06450	.03940	.43610	-.01398	.03570	-.03210	-.19600	.81800	.04408
.200	10.100	.43640	.06110	.03640	.44030	-.01820	.03790	-.03570	-.23100	.82100	.04742
.200	12.110	.43810	.06110	.03660	.44190	-.01847	.03620	-.03600	-.25700	.82100	.04946
.200	14.160	.43840	.05820	.03630	.44170	-.02140	.03500	-.03690	-.28300	.82100	.05224
GRADIENT	.00046	.00046	-.00013	-.00036	.00042	-.00020	.00045	-.00202	-.01826	.00039	.00063

DATE 05 AUG 74

TABULATED SOURCE DATA - 0A110

PAGE 25

0A110 B61C11F12M51U424E40V19R15X29

(RF5025) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 90.FT. XMRP = 43.5974 INCHES
LREF = 19.2799 INCHES YMRP = .0000 INCHES
BREF = 37.5359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -25.000 SPD8RK = 25.000

RUN NO. 25/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-14.130	.44430	.03140	.03010	.44630	-.02919	.00190	.01770	.19800	.62700	.04564
.200	-12.110	.44180	.05610	.03420	.44470	-.02414	.00560	.01340	.16300	.62300	.04530
.200	-10.090	.42950	.06140	.04090	.43350	-.01669	.01060	.00800	.12200	.61700	.04323
.200	-8.080	.42250	.06720	.04750	.42770	-.00962	.01690	.00210	.07900	.61100	.04207
.200	-6.050	.41590	.06990	.05260	.42170	-.00584	.02230	-.00380	.03700	.60600	.04146
.200	-4.050	.41230	.07210	.05690	.41860	-.00301	.02570	-.00860	.00100	.60200	.04025
.200	-2.020	.40730	.07330	.05860	.41390	-.00090	.02820	-.01330	-.03300	.60000	.03983
.200	.000	.40950	.07420	.05840	.41620	-.00043	.03080	-.01760	-.06800	.60000	.03985
.200	2.000	.41060	.07290	.05840	.41710	-.00188	.03320	-.02220	-.10200	.60200	.04069
.200	4.020	.41390	.07100	.05280	.41990	-.00439	.03480	-.02650	-.13400	.60500	.04195
.200	6.040	.42040	.06850	.04810	.42590	-.00799	.03750	-.03110	-.17000	.61000	.04363
.200	8.070	.42290	.06590	.04500	.42760	-.01099	.03890	-.03400	-.20400	.61300	.04667
.200	10.100	.42730	.06490	.04280	.43200	-.01282	.03880	-.03560	-.23500	.61500	.04844
.200	12.120	.42910	.06500	.04460	.43380	-.01297	.03570	-.03540	-.25700	.61400	.0507
.200	14.140	.43100	.06250	.04420	.43520	-.01584	.03530	-.03690	-.28500	.61400	.05380
GRADIENT		.00032	-.00013	-.00051	.00029	-.00018	.00115	-.00222	-.01682	.00040	.00021

OA110 861C11F12M51W124E40V19R15229

(RF5026) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. YMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILERON = .000
RUDDER = -20.000 SPOBRK = 25.000

RUN NO. 26/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.140	.44580	.04950	.02800	.44750	-.03132	-.00340	.02070	.20700	.62900	.04586
.200	-12.110	.44100	.05440	.03240	.44360	-.02565	.00020	.01670	.17250	.62500	.04367
.200	-10.080	.43650	.05810	.03700	.43980	-.02121	.00500	.01150	.13400	.62100	.04313
.200	-8.050	.42720	.06250	.04290	.43155	-.01510	.01070	.00570	.09350	.61500	.04133
.200	-6.030	.42060	.06540	.04770	.42550	-.01106	.01620	-.00030	.05100	.61000	.04038
.200	-4.060	.41540	.06770	.05240	.42080	-.00790	.01960	-.00530	.01200	.60600	.03882
.200	-2.010	.41270	.06840	.05440	.41830	-.00668	.02230	-.00990	-.02100	.60400	.03954
.200	.000	.41150	.06990	.05440	.41740	-.00502	.02470	-.01430	-.05400	.60400	.03870
.200	2.020	.41240	.06980	.05230	.41820	-.00325	.02720	-.01880	-.09000	.60600	.03857
.200	4.020	.41560	.06810	.04960	.42110	-.00751	.02910	-.02320	-.12350	.60800	.03965
.200	6.040	.41990	.06450	.04560	.42460	-.01183	.03280	-.02830	-.16100	.61200	.04235
.200	8.090	.42620	.06230	.04270	.43050	-.01511	.03490	-.03180	-.19650	.61500	.04591
.200	10.100	.43290	.06090	.04010	.43680	-.01774	.03490	-.03490	-.22900	.61800	.04826
.200	12.120	.43820	.06080	.04270	.43610	-.01768	.03340	-.03440	-.25350	.61600	.04980
.200	14.160	.43250	.05970	.04170	.43620	-.01890	.03340	-.03620	-.28100	.61600	.05131
	GRADIENT	.00000	.00011	-.00038	.00002	.00011	.00118	-.00221	-.01679	.00030	.00003

DATE 05 AUG 74 TABULATED SOURCE DATA - 0A110

0A110 861C11F12M51A124E40V19R15X29 (RF5027) (08 MAY 74)

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -10.000 SPOBRK = 25.000

REFERENCE DATA

SREF = 4.4119 50.FT. YMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

RUN NO. 27/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	X/P/L	CAB
.200	-14.050	.44680	.04930	.02690	.44840	-.03172	-.01420	.02660	.23000	.63000	.04574
.200	-12.120	.44470	.05170	.02930	.44670	-.02901	-.01160	.02340	.19800	.62700	.04459
.200	-10.070	.44090	.05510	.03310	.44370	-.02496	-.00740	.01850	.16100	.62400	.04277
.200	-8.080	.43300	.05900	.03700	.43650	-.01962	-.00250	.01340	.12200	.62000	.03951
.200	-6.040	.42710	.06150	.04120	.43120	-.01606	.00260	.00730	.08100	.61600	.03761
.200	-4.050	.42470	.06290	.04640	.42910	-.01429	.00670	.00200	.04500	.61200	.03744
.200	-2.020	.42310	.06400	.04840	.42770	-.01298	.00940	-.00270	.00900	.61000	.03827
.200	.000	.41550	.06460	.04930	.42030	-.01094	.01220	-.00700	-.02600	.60800	.03725
.200	2.040	.41870	.06310	.04690	.42360	-.01108	.01510	-.01200	-.06300	.61100	.03699
.200	4.020	.41800	.06300	.04490	.42250	-.01279	.01760	-.01670	-.09700	.61300	.03783
.200	6.070	.42360	.06050	.04040	.42780	-.01646	.02210	-.02210	-.13700	.61700	.04003
.200	8.070	.43090	.05940	.03690	.43460	-.01891	.02510	-.02650	-.17300	.62000	.04276
.200	10.100	.43590	.05690	.03380	.43900	-.02221	.02790	-.03040	-.20900	.62300	.04543
.200	12.120	.43810	.05640	.03310	.44110	-.02310	.02830	-.03230	-.24500	.62400	.04636
.200	14.140	.44050	.05420	.03350	.44300	-.02575	.02890	-.03440	-.27000	.62400	.04915
.200	GRADIENT	-.00088	.00008	-.00022	-.00086	.00024	.00136	-.00231	-.01762	.00015	-.00003

04110 861C11F12M51M24E45V19R15X29

(RF5026) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.9974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BRFP = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLA = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPOBRK = 25.000

RUN NO. 28/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	C _M	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.150	.44510	.04970	.02700	.44680	-.03088	-.02320	.03110	.24800	.62900	.04868
.200	-12.130	.44180	.05210	.02970	.44400	-.02798	-.02150	.02840	.21700	.62700	.04628
.200	-10.110	.43950	.05350	.03120	.44200	-.02620	-.01990	.02560	.18500	.62600	.04509
.200	-8.090	.43250	.05750	.03480	.43580	-.02091	-.01580	.02080	.14800	.62200	.04057
.200	-6.050	.42990	.05730	.03780	.43320	-.02165	-.01140	.01550	.11500	.61900	.04041
.200	-4.070	.42320	.06080	.04290	.42720	-.01600	-.00690	.01010	.07100	.61500	.03771
.200	-2.030	.41680	.06230	.04550	.42130	-.01332	-.00410	.00520	.03600	.61200	.03635
.200	.000	.41640	.06240	.04630	.42090	-.01318	-.00120	.00060	.00100	.61100	.03692
.200	2.000	.41850	.06260	.04570	.42300	-.01333	.00140	-.00390	-.00200	.61200	.03676
.200	4.000	.41840	.05910	.04320	.42220	-.01679	.00400	-.00800	-.06800	.61400	.03840
.200	6.040	.42360	.05680	.03890	.42700	-.02000	.00820	-.01410	-.10800	.61900	.03985
.200	8.070	.42940	.05660	.03400	.43260	-.02125	.01220	-.01910	-.14600	.62300	.04112
.200	10.090	.43240	.05420	.03020	.43510	-.02408	.01670	-.02410	-.18400	.62600	.04261
.200	12.100	.43930	.05260	.02690	.44160	-.02693	.01890	-.02750	-.21900	.62800	.04439
.200	14.140	.44150	.05040	.02830	.44340	-.02954	.01900	-.02890	-.24800	.62800	.04730
GRADIENT		-.00039	-.00015	.00007	-.00041	-.00008	.00130	-.00233	-.01715	-.00010	.00009

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TABULATED SOURCE DATA - 04110

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04110 B61C11F12H51W24E41V19R15X29

(RF5029) (06 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .5455 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDCLAP = -12.000
 ELEVON = .000 ALLRON = .000
 RUDDER = .000 SPOBRK = 25.000

RUN NO. 29/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDP	CLM	CN	CAF	CYN	CDL	CY	KCP/L	CAB
.000	-14.130	.45020	.05110	.02690	.45190	-.03037	-.02340	.03140	.24900	.63050	-.04840
.200	-12.120	.44650	.05370	.02900	.44840	-.02725	-.02130	.02850	.21700	.62800	-.04586
.200	-10.090	.44110	.05630	.03060	.44410	-.02380	-.02000	.02570	.18500	.62600	-.04259
.200	-8.070	.43680	.05770	.03390	.44010	-.02165	-.01630	.02130	.14900	.62300	-.04095
.200	-6.030	.43500	.05910	.03660	.43850	-.01985	-.01160	.01580	.11100	.62100	-.03959
.200	-4.030	.42750	.06160	.04170	.43170	-.01610	-.00720	.01050	.07200	.61600	-.03777
.200	-2.020	.42350	.06280	.04450	.42790	-.01411	-.00430	.00560	.03700	.61300	-.03726
.200	-.010	.42450	.06360	.04540	.42900	-.01338	-.00130	.00100	.00200	.61300	-.03738
.200	2.030	.42280	.06270	.04430	.42720	-.01408	.00120	-.00370	-.03300	.61300	-.03730
.200	4.020	.42310	.06180	.04220	.42750	-.01503	.00390	-.00870	-.06800	.61500	-.03663
.200	6.070	.42690	.05850	.03710	.43050	-.01897	.00800	-.01390	-.10600	.62000	-.03865
.200	8.080	.43320	.05740	.03280	.43650	-.02123	.01220	-.01910	-.14600	.62400	-.04086
.200	10.100	.43840	.05530	.02980	.44120	-.02426	.01670	-.02420	-.18400	.62700	-.04261
.200	12.140	.44160	.05290	.02810	.44390	-.02713	.01920	-.02780	-.22000	.62800	-.04431
.200	14.150	.44560	.05080	.02760	.44750	-.02994	.02040	-.03000	-.25200	.62900	-.04654
GRADIENT	-.00047	-.00047	.00001	.00004	-.00047	.00011	.00137	-.00235	-.01737	-.00010	-.00011

04110 861C11F12M31A24E41V19R15X29

(RF3030) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 30.FT. YMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9339 INCHES YMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPOBPK = 25.000

RUN NO. 30/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	ALPHA	CL	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-4.190	.26500	.04430	.04950	.02484	-.00140	.00070	.00200	.72000	.03901
.200	-2.090	.16400	.03430	.04820	.02630	-.00130	.00070	.00300	.75000	.03812
.200	-1.070	.11930	.03010	.04770	.02794	-.00140	.00070	.00200	.79800	.03997
.200	-.040	.06980	.02970	.04690	.02965	-.00150	.00060	.00200	.89900	.03711
.200	.970	.02620	.02800	.04650	.02846	-.00150	.00070	.00200	1.31600	.03795
.200	2.010	.02310	.02820	.04650	.02745	-.00140	.00050	.00200	-.05800	.03721
.200	4.090	.11830	.02930	.04610	.02078	-.00130	.00080	.00100	.51000	.03755
.200	6.170	.21770	.03550	.04540	.01195	-.00140	.00080	.00100	.57600	.03657
.200	8.250	.32240	.04630	.04460	-.00036	-.00150	.00090	.00100	.67100	.03696
.200	10.330	.42090	.06310	.04620	-.01337	-.00150	.00070	.00100	.61200	.03689
.200	12.420	.52880	.08650	.04710	-.02924	-.00170	.00090	.00100	.61900	.03847
.200	14.510	.64630	.11930	.04480	-.04646	-.00160	.00040	.00100	.62700	.04122
.200	16.590	.77350	.16580	.03490	-.06199	-.00190	.00040	.00100	.63500	.04221
.200	18.690	.89190	.22000	.02980	-.07745	-.00210	.00010	.00100	.64000	.04470
.200	20.810	1.00450	.28460	.02740	-.09086	-.00160	-.00020	.00100	.64200	.04746
.200	22.980	1.12230	.38550	.01020	-.08130	-.00130	-.00020	.00100	.64800	.05333
.200	24.970	1.20220	.46070	.01770	-.08999	.00030	.00450	-.01000	.64700	.05798
.200	27.060	1.24470	.53510	.03250	-.08984	-.00090	.00800	-.00900	.64300	.06346
.200	29.030	1.17810	.56320	.07500	-.07926	-.00570	.01080	.00000	.63000	.06952
.200	30.930	1.02430	.54570	.12690	-.05851	-.00690	.00100	.00000	.61100	.07585
.200	GRADIENT	.04614	-.00172	-.00042	-.00040	.00000	.00000	-.00014	-.04515	-.00020

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TABULATED SOURCE DATA - 04110

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04110 061C11F12M51W24E41V19R15X29

(NF5031) (00 MAY 74)

REFERENCE DATA

BREF = 4.4119 SQ.FT. WREF = 43.5974 INCHES
LREF = 19.2299 INCHES YREF = .0000 INCHES
BREF = 37.9359 INCHES ZREF = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
ELEVON = 15.000 AILRON = .000
RUDDER = .000 SPOBRK = 25.000

RUN NO. 31/ 0 RWL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-4.010	.04530	.04030	-.08330	.04230	.04340	-.00120	.00090	.00400	1.46200	.04750
.200	-1.940	.14210	.04130	-.09580	.14060	.04610	-.00120	.00100	.00300	.90200	.04753
.200	-.890	.19120	.04120	-.09790	.19050	.04420	-.00120	.00100	.00400	.84100	.04960
.200	.120	.24190	.04470	-.09850	.24200	.04410	-.00130	.00100	.00400	.80100	.04893
.200	1.180	.29980	.04910	-.09920	.29070	.04310	-.00120	.00110	.00400	.77700	.04749
.200	2.170	.33090	.05350	-.09960	.33280	.04292	-.00130	.00110	.00300	.76200	.04521
.200	4.230	.42690	.06560	-.10130	.43060	.03372	-.00140	.00130	.00300	.73800	.04627
.200	6.330	.52890	.08380	-.10440	.53490	.02493	-.00130	.00140	.00400	.72400	.04407
.200	8.420	.63540	.10590	-.10670	.64500	.01155	-.00130	.00120	.00400	.71300	.04456
.200	10.500	.73850	.13470	-.10890	.75060	-.00209	-.00120	.00070	.00200	.69900	.04553
.200	12.600	.85600	.17420	-.11260	.87340	-.01673	-.00120	.00070	.00100	.69400	.04768
.200	14.690	.96810	.21870	-.11510	.99200	-.03380	-.00210	.00030	.00200	.69200	.04961
.200	16.770	1.09100	.27740	-.12280	1.12460	-.04933	-.00180	.00030	.00200	.68000	.05250
.200	18.870	1.19880	.34330	-.12420	1.24540	-.06296	-.00120	.00030	.00200	.66700	.05050
.200	20.960	1.28840	.43010	-.12530	1.35700	-.05931	.00300	.00170	.00300	.64600	.05353
.200	23.060	1.42560	.54370	-.14420	1.52280	-.05749	-.00190	-.00340	.00300	.62700	.05797
.200	25.130	1.44650	.67450	-.11200	1.56500	-.06335	.00160	.00690	.00100	.67800	.06777
.200	27.120	1.38910	.64370	-.06060	1.52980	-.06047	-.00290	.01630	.00100	.66600	.06533
.200	29.030	1.10610	.61130	.02470	1.33380	-.04113	-.00330	-.00300	.00200	.64500	.06559
.200	29.990	1.13880	.61160	.04610	1.29200	-.03974	-.00580	-.00480	.00200	.63900	.06559
.200	67AD7 JMT	.04622	.00317	-.00094	.04703	-.00107	-.00702	.00004	.00010	-.07439	-.00725

041110 861C11F12451W42E41V19R15X29

(RF5032) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.9974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
DREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
ELEWON = -20.000 AIRCON = .000
RUDDER = .000 SPDBRK = 25.000

RUN NO. 32/ 0 RNL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDP	CLM	CN	CAF	CVN	CBL	CV	XCP/L	CAB
.200	-4.410	-66410	.10900	.22490	-57050	.05767	-.00200	-.00010	.00500	.77500	.02872
.200	-2.320	-55890	.08430	.21920	-56190	.06160	-.00150	.00080	.00400	.79500	.02906
.200	-1.300	-50810	.07540	.21690	-50960	.06385	-.00140	.00090	.00300	.80800	.02766
.200	-.260	-45100	.06510	.21260	-45210	.06308	-.00150	.00070	.00300	.82500	.02813
.200	-.770	-39840	.05740	.20980	-39760	.06283	-.00170	.00000	.00300	.84600	.02816
.200	1.800	-35050	.05060	.20870	-34870	.06170	-.00160	.00010	.00200	.87200	.02874
.200	3.870	-25560	.04060	.20610	-25230	.05780	-.00150	.00040	.00300	.95200	.02844
.200	5.950	-16450	.03340	.20870	-16020	.05033	-.00140	.00040	.00200	1.13100	.02930
.200	8.040	-06950	.03320	.21060	-56320	.04246	-.00140	.00030	.00200	1.87000	.02831
.200	10.090	.02350	.03590	.21590	.02930	.03039	-.00130	.00040	.00100	-2.05200	.03071
.200	12.180	.11690	.04510	.22020	.12380	.01940	-.00120	.00050	.00100	-.00200	.03052
.200	14.280	.22260	.06140	.22230	.23090	.00474	-.00130	.00050	.00100	.29700	.03368
.200	16.370	.33690	.09030	.22010	.34870	-.00830	-.00140	.00060	.00100	.41900	.03419
.200	18.450	.46030	.12740	.21620	.47750	-.02478	-.00150	.00150	.00100	.48500	.03719
.200	20.530	.56390	.17210	.21790	.58350	-.03662	-.00160	.00040	.00100	.51500	.03972
.200	22.610	.66540	.22750	.21800	.70150	-.04632	-.00060	.00070	.00000	.53700	.03984
.200	24.720	.78270	.30280	.20620	.83760	-.05233	.00000	.00010	-.01000	.56100	.04450
.200	26.800	.86460	.37270	.20570	.93980	-.05716	-.00060	.00300	-.00300	.57100	.04805
.200	28.850	.92040	.44110	.21120	1.01900	-.05782	-.00170	.00360	.00100	.57500	.05351
.200	30.860	.85260	.45990	.24450	.96780	-.04283	-.00500	.00290	.01100	.55900	.05770
GRADIENT	.04848	-.00717	-.00003	-.00003	.04950	-.00076	.00003	-.00000	-.00025	.03200	.00004

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TABULATED SOURCE DATA - QM110

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QM110 B61C11F12M51W24E42V19R15X29

(RF5033) (5 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
ELFVON = -20.000 AILRON = .010
RUDDER = .000 SPDPER = 25.00

RUN NO. 33/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CV	KCP/L	CAB
.200	-4.380	-.62420	.10960	.21000	-.63070	.56159	-.00140	.00310	.00500	.77400	.02978
.200	-2.310	-.52340	.08820	.20640	-.52650	.56700	-.00130	.00280	.05400	.79600	.02959
.200	-1.270	-.47050	.07680	.20340	-.47160	.56636	-.00110	.00300	.00300	.81000	.03081
.200	-.190	-.41080	.06910	.19880	-.41110	.56771	-.00120	.00280	.00200	.83000	.02888
.200	.780	-.36440	.06150	.19740	-.36360	.56653	-.00130	.00250	.00200	.85100	.03039
.200	1.840	-.31220	.05690	.19520	-.31020	.56692	-.00130	.00260	.00300	.88300	.02896
.200	3.900	-.21250	.04740	.19310	-.20880	.56185	-.00110	.00250	.00100	.99200	.03026
.200	5.980	-.12310	.04260	.19300	-.11790	.55527	-.00110	.00260	.00100	1.25400	.02873
.200	8.050	-.02670	.04100	.19540	-.02060	.54438	-.00100	.00270	.00000	4.12700	.03016
.200	10.120	.06520	.04490	.20030	.07210	.53278	-.00100	.00250	.00000	-.36900	.03102
.200	12.200	.15780	.05320	.20590	.16590	.52063	-.00090	.00240	.00000	.19500	.03090
.200	14.280	.25680	.07130	.21010	.26640	.50580	-.00080	.00220	.00000	.36200	.03377
.200	16.360	.36410	.10010	.20990	.37760	-.00648	-.00120	.00160	.00000	.44700	.03349
.200	18.450	.47730	.13550	.20980	.49570	-.02260	-.00180	.00170	.00000	.49600	.03690
.200	20.530	.57590	.17890	.21350	.62210	-.03458	-.00200	.00020	.00100	.52100	.03966
.200	22.630	.67510	.23120	.21700	.71030	-.04566	-.00090	.00080	.00000	.53900	.04144
.200	24.740	.76740	.30660	.20520	.84340	-.05112	-.00020	.00480	-.00000	.56200	.04528
.200	26.800	.86400	.37500	.20530	.94030	-.05489	.00000	.00190	-.00400	.57100	.04752
.200	28.860	.91020	.44010	.21240	1.00960	-.05388	-.00190	.00300	.00200	.57400	.05316
.200	30.840	.84650	.46050	.24710	.96290	-.03871	-.00500	.00170	.01200	.55700	.05766
GRADIENT		.04885	-.00638	-.00179	.04996	-.00069	.00002	-.00005	-.00038	.04229	-.00005

CA1115 B61C111F12451W324E42V19R15X29

(RF5034) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0005 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
 ELEVEN = 15.000 AILRON = .000
 RUDDER = .000 SPDRK = 25.000

RUN NO. 34/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CRL	CY	XCF/L	CAB
.200	-3.580	.04525	.04000	-.09240	.03730	.04279	-.00140	.00030	.00400	1.56200	.04634
.200	-1.910	.13580	.04070	-.09440	.13440	.04330	-.00150	.00040	.00500	.91000	.04796
.200	-.680	.18440	.04390	-.09410	.18370	.04683	-.00159	.00010	.00400	.84000	.04614
.200	.130	.23200	.04850	-.09550	.23210	.04592	-.00170	.00000	.00500	.80300	.04640
.200	1.170	.27610	.05020	-.09600	.27710	.04464	-.00170	.00000	.00500	.77900	.04616
.200	2.200	.32410	.05340	-.09680	.32590	.04096	-.00160	-.00020	.00500	.76100	.04741
.200	4.270	.41630	.06730	-.09790	.42020	.03615	-.00170	-.00030	.00500	.73700	.04400
.200	6.360	.51790	.06770	-.10160	.52400	.02582	-.00180	-.00030	.00500	.72300	.04424
.200	8.450	.62760	.10570	-.10470	.63640	.01227	-.00180	-.00040	.00500	.71200	.04512
.200	10.510	.75480	.13490	-.10770	.74710	-.00143	-.00200	.00030	.00500	.70500	.04509
.200	12.610	.84450	.17330	-.11040	.86200	-.01524	-.00180	.00000	.00400	.59900	.04556
.200	14.720	.97060	.22100	-.11680	.99490	-.03289	-.00180	-.00030	.00400	.69500	.04808
.200	16.800	1.08950	.27910	-.12300	1.12370	-.04783	-.00190	-.00010	.00300	.69200	.04914
.200	18.890	1.19410	.34400	-.12340	1.24120	-.06127	-.00130	.00030	.00200	.68800	.05231
.200	20.970	1.28200	.42290	-.12190	1.34840	-.06398	.00100	.00190	-.00100	.68500	.05710
.200	23.080	1.42510	.54390	-.14490	1.52240	-.05757	.00180	-.00290	.00200	.68700	.06417
.200	25.140	1.45010	.61060	-.11380	1.57220	-.06335	.00140	.00390	-.01300	.67800	.06713
.200	27.220	1.38540	.64360	-.06080	1.52470	-.05810	.00260	.01960	-.02200	.66600	.07409
.200	29.030	1.10690	.61100	.02440	1.33430	-.04191	-.00810	-.00590	.00300	.64500	.06655
.200	31.000	1.11640	.62960	.03230	1.28120	-.03547	-.00450	-.00160	.01900	.63700	.09035
GRADIENT	.04559	.00326	.00326	-.00066	.04641	-.00066	-.00004	-.00009	.00012	-.08462	-.00043

OA110 B61C11F12M51A24E2V19R15X29

(RF5035) (06 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. WARP = 43.5974 INCHES
 LREF = 19.2299 INCHES YWAP = .0000 INCHES
 BREF = 37.9359 INCHES ZWAP = 15.1075 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.500
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPCBRK = 25.000

RUN NO. 35/ 0 RVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDP	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-4.180	-.25940	.04480	.04810	-.28190	.02581	-.00130	.00080	.00400	.71800	.03786
.200	-2.110	-.16190	.03300	.04600	-.16300	.02910	-.00110	.00100	.00300	.79800	.03717
.200	-1.080	-.11550	.03060	.04570	-.11600	.02848	-.00120	.00080	.00300	.79700	.03891
.200	-.030	-.06520	.02930	.04530	-.05320	.02934	-.00130	.00060	.00300	.90800	.03741
.200	.990	-.01750	.02870	.04540	-.01700	.02901	-.00110	.00070	.00200	1.63400	.03768
.200	2.040	.02880	.02740	.04520	.02980	.02644	-.00110	.00080	.00200	.09400	.03842
.200	4.110	.12230	.03110	.04430	.12420	.02232	-.00110	.00070	.00200	.52000	.03627
.200	6.180	.22300	.03660	.04360	.22570	.01235	-.00110	.00070	.00200	.58000	.03688
.200	8.250	.32510	.04870	.04300	.32870	.00155	-.00120	.00050	.00300	.60300	.03515
.200	10.320	.42330	.06350	.04400	.42780	-.01331	-.00120	.00040	.00200	.61400	.03737
.200	12.410	.53130	.08800	.04450	.53780	-.02822	-.00130	.00030	.00300	.62100	.03819
.200	14.510	.64590	.12030	.04340	.65540	-.04537	-.00140	-.00010	.00100	.62700	.04070
.200	16.600	.77450	.16820	.03410	.78970	-.08202	-.00160	.00000	.00100	.63600	.04284
.200	18.700	.88970	.22070	.02880	.91350	-.07819	-.00180	.00000	.00200	.64000	.04371
.200	20.790	1.00310	.28510	.02730	1.03900	-.08960	-.00130	-.00030	.00000	.64200	.04684
.200	22.890	1.12250	.38320	.00950	1.18400	-.08180	-.00100	-.00020	.00000	.64900	.05339
.200	24.970	1.20120	.46070	.01780	1.28340	-.08945	.00040	.00470	-.01000	.64700	.05833
.200	27.020	1.24830	.53460	.03130	1.35490	-.09599	.00080	.00800	-.00900	.63000	.06451
.200	29.020	1.19190	.56990	.07090	1.31880	-.08004	-.00480	.00550	.00800	.63200	.07001
.200	30.940	1.03090	.54950	.12670	1.16670	-.05885	-.00550	-.00290	.02400	.61200	.07696
.200	GRADIENT	.04609	-.00165	-.00039	.04661	-.00043	.00002	-.00003	-.00025	-.02971	-.00012

(RF5036) (58 MAY 74)

04110 B61C11F12M51M24E42V19R15X29

REFERENCE DATA

SREF = 4.4119 58. FT. YMRP = 43.5974 INCHES
 LREF = 19.2259 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .5405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPODER = 25.000

RUN NO. 36/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.130	.45380	.03150	.02350	.45570	-.03085	-.02390	.03220	.25000	.63100	.04794
.200	-12.130	.45130	.03440	.02740	.45380	-.02760	-.02250	.02940	.25000	.62900	.04552
.200	-10.100	.44920	.03580	.02960	.45190	-.02584	-.02000	.02600	.18500	.62800	.04457
.200	-8.080	.44100	.03940	.03250	.44450	-.02074	-.01610	.02130	.14900	.62500	.04510
.200	-6.050	.43650	.04130	.03590	.44040	-.01804	-.01140	.01570	.11000	.62200	.03761
.200	-4.080	.43310	.04300	.04090	.43740	-.01579	-.00690	.01010	.07300	.61700	.03728
.200	-2.020	.42780	.04370	.04300	.43230	-.01415	-.00410	.00330	.03800	.61500	.03718
.200	.000	.42620	.04400	.04390	.43080	-.01358	-.00130	.00050	.00400	.61400	.03732
.200	2.030	.42730	.04310	.04320	.43240	-.01476	.00140	-.00410	-.03100	.61500	.03759
.200	4.010	.42730	.04250	.04060	.43160	-.01511	.00400	-.00900	-.06600	.61700	.03640
.200	6.030	.43400	.03660	.03650	.43750	-.02021	.00830	-.01430	-.10600	.62100	.03981
.200	8.060	.43550	.03760	.03280	.43870	-.02147	.01260	-.01970	-.14400	.62400	.04125
.200	10.110	.44350	.05480	.02940	.44620	-.02578	.01700	-.02470	-.18400	.62700	.04414
.200	12.110	.44730	.05180	.02820	.44930	-.02934	.02030	-.02870	-.22100	.62900	.04644
.200	14.130	.45170	.05060	.02590	.45340	-.03135	.02180	-.03120	-.25300	.63100	.04766
GRADIENT		-.00037	-.00508	-.00002	-.00057	.00004	.00135	-.00236	-.01719	-.00000	-.00007

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TABULATED SOURCE DATA - 0A110

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0A110 861C11F12H51A24E4DV19R16X29

(RF5037) (08 MAY 74)

REFERENCE DATA

SECF = 4.4119 50.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

BETA = .000 BOFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDGRK = 25.000

PARAMETRIC DATA

RUN NO. 37/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDP	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-4.180	-.26590	.04340	.04870	-.26430	.02397	-.00150	.00080	.00300	.71800	.03928
.200	-2.110	-.16390	.03410	.04750	-.16500	.02808	-.00150	.00080	.00300	.75700	.03796
.200	-1.060	-.11830	.03050	.04640	-.11860	.02838	-.00150	.00070	.00400	.79600	.03441
.200	-.040	-.07000	.02800	.04620	-.07000	.02802	-.00150	.00060	.00500	.89500	.03693
.200	-.980	-.02440	.02830	.04570	-.02390	.02875	-.00150	.00060	.00300	1.35400	.03692
.200	2.050	.02380	.02740	.04600	.02470	.02658	-.00140	.00070	.00300	-.03100	.03796
.200	4.090	.12040	.02980	.04540	.12220	.02114	-.00140	.00060	.00200	.51500	.03695
.200	6.170	.21820	.03590	.04480	.22080	.01227	-.00150	.00040	.00200	.57700	.03560
.200	8.250	.31710	.04520	.04450	.32030	-.00076	-.00130	.00030	.00200	.60000	.03705
.200	10.330	.41960	.06200	.04560	.42400	-.01425	-.00150	.00020	.00100	.61200	.03724
.200	12.420	.52910	.08600	.04680	.53520	-.02974	-.00150	.00001	.00200	.61900	.03857
.200	14.500	.64380	.11820	.04440	.65290	-.04674	-.00160	-.00030	.00100	.62700	.04129
.200	16.590	.76950	.16530	.03510	.78470	-.06137	-.00190	.00010	.00200	.63500	.04111
.200	18.700	.89240	.22030	.02860	.91590	-.07744	-.00220	-.00010	.00300	.64000	.04448
.200	20.800	1.00220	.28420	.02670	1.03780	-.09026	-.00150	-.00020	.00100	.64200	.04654
.200	22.910	1.12840	.38690	.00830	1.19000	-.08299	-.00110	-.00030	.00000	.64900	.05387
.200	24.980	1.20960	.46370	.01440	1.29220	-.09047	.00040	.00400	-.00900	.64800	.05840
.200	27.030	1.24880	.53590	.03020	1.35590	-.09021	-.00060	.00830	-.01100	.64300	.06331
.200	29.010	1.18040	.56550	.07300	1.30650	-.07808	-.00490	.00260	.00800	.63100	.06934
.200	30.940	1.03560	.54640	.12710	1.16850	-.06110	-.00320	-.00140	.02000	.61200	.07729
	GRADIENT	.04637	-.00161	-.00038	.04688	-.00032	.00001	-.00003	-.00011	-.04263	-.00025

0A110 861C11F12M51M24E4DV19R16X29

(RF5938) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .5495 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPOBRK = 25.000

RUN NO. 38/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.55/ 6.00

WACH	BETA	CL	COF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.120	.44810	.05000	.02745	.44980	-.03134	-.02140	.03010	.24500	.62900	.05904
.200	-12.120	.44700	.05460	.02880	.44950	-.02655	-.02030	.02710	.21500	.62800	.04554
.200	-10.070	.44090	.05680	.03130	.44390	-.02333	-.01800	.02410	.18200	.62600	.04282
.200	-8.090	.43920	.05840	.03400	.44260	-.02139	-.01540	.02050	.14800	.62300	.04072
.200	-6.070	.43360	.06070	.03700	.43750	-.01814	-.01120	.01520	.11000	.62000	.03765
.200	-4.070	.42740	.06120	.04230	.43150	-.01653	-.00700	.00990	.07300	.61600	.03776
.200	-2.020	.42230	.06190	.04460	.42650	-.01488	-.00410	.00500	.03800	.61300	.03761
.200	.000	.42540	.06350	.04590	.42990	-.01387	-.00130	.00040	.00300	.61200	.03713
.200	2.010	.42330	.06260	.04510	.42770	-.01436	.00140	-.00380	-.03100	.61300	.03738
.200	4.030	.41970	.06110	.04220	.42390	-.01515	.00390	-.00860	-.06600	.61500	.03617
.200	6.050	.42980	.05820	.03790	.43330	-.01987	.00810	-.01420	-.10500	.61900	.03964
.200	8.060	.43290	.05760	.03420	.43820	-.02103	.01210	-.01940	-.14300	.62300	.04560
.200	10.060	.43920	.05510	.03140	.44260	-.02465	.01510	-.02320	-.17900	.62600	.04374
.200	12.120	.44260	.05370	.03000	.44510	-.02664	.01820	-.02680	-.21500	.62700	.04431
.200	14.140	.44600	.05040	.02860	.44780	-.03052	.01950	-.02960	-.24800	.62800	.04781
GRADIENT	-.00071	-.00003	.00003	.00002	-.00069	.00016	.00135	-.00226	-.01715	-.00010	-.00017

Q4110 B61C11F12H31A24E40V19R17X29

(RF5039) (06 MAY 74)

REFERENCE DATA

WREF = 4.4119 34.17. YREF = 45.5974 INCHES
LREF = 19.2299 INCHES YREF = .0000 INCHES
BREF = 37.9359 INCHES ZREF = 15.1875 INCHES
SCALE = .0455 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SFOBRK = 25.000

RUN NO. 39/ 0 RVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	MCP/L	CAB
.200	-4.180	-.26500	.04440	.04910	-.26750	.02497	-.00120	.00080	.00300	.71950	.03812
.200	-2.100	-.16610	.03310	.04720	-.16720	.02698	-.00110	.00080	.00300	.75600	.03906
.200	-1.070	-.11650	.03110	.04700	-.11710	.02900	-.00140	.00060	.00400	.79900	.03773
.200	-.040	-.06850	.02870	.04670	-.06900	.02874	-.00130	.00050	.00300	.90400	.03610
.200	.990	-.02280	.02830	.04630	-.02230	.02878	-.00120	.00070	.00300	1.41300	.03758
.200	2.020	.02640	.02710	.04590	.02730	.02615	-.00120	.00060	.00300	.03400	.03629
.200	4.100	.12050	.03000	.04660	.12240	.02135	-.00110	.00050	.00200	.51200	.03686
.200	6.170	.22090	.03570	.04530	.22350	.01172	-.00120	.00060	.00300	.57700	.03673
.200	8.260	.32030	.04710	.04480	.32370	.00662	-.00120	.00030	.00300	.60100	.03581
.200	10.320	.42200	.06260	.04640	.42640	-.01407	-.00120	.00030	.00200	.61200	.03744
.200	12.410	.52700	.08700	.04650	.53350	-.02833	-.00130	.00000	.00200	.62000	.03761
.200	14.500	.64590	.12030	.04480	.65540	-.04525	-.00130	.00000	.00200	.62600	.04025
.200	16.590	.77090	.16550	.03520	.78610	-.06164	-.00170	.00020	.00100	.63500	.04165
.200	18.700	.89410	.22120	.02910	.91780	-.07719	-.00190	.00000	.00200	.64000	.04426
.200	20.810	1.00500	.28540	.02760	1.04080	-.09019	-.00130	.00000	.00200	.64200	.04660
.200	22.900	1.12560	.36640	.00830	1.18730	-.08211	-.00090	-.00050	.00100	.64900	.05334
.200	25.000	1.21520	.46660	.01270	1.29860	-.09046	.00080	.00310	-.00700	.64800	.05814
.200	27.040	1.24450	.53590	.03190	1.35210	-.08842	-.00040	.00710	-.00900	.64300	.06228
.200	29.020	1.17180	.56160	.07650	1.29710	-.07736	-.00540	.00890	.00300	.63000	.06936
.200	30.950	1.02870	.54770	.12770	1.16390	-.05941	-.00550	-.00020	.02000	.61100	.07665
.200	GRADIENT	.04654	-.00167	-.00031	.04706	-.05038	.00001	-.00003	-.00012	-.03814	-.00017

0A110 861C11F12M51A24E6V19R17X29

(RFS040) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 32-FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SFCBRK = 25.000

RUN NO. 40/ 0 RIN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-14.130	.45310	.05080	.02640	.45480	-.03145	-.02370	.03150	.25000	.63000	.04808
.200	-12.100	.44670	.03290	.02850	.44690	-.02823	-.02210	.02870	.21900	.62800	.04575
.200	-10.100	.44490	.05520	.03070	.44760	-.02564	-.01930	.02510	.18500	.62600	.04404
.200	-8.080	.43950	.03780	.03350	.44270	-.02202	-.01570	.02060	.14900	.62400	.04117
.200	-6.030	.43450	.05920	.03750	.43810	-.01980	-.01120	.01530	.11100	.62000	.03877
.200	-4.040	.42650	.06160	.04210	.43070	-.01592	-.00680	.01000	.07300	.61600	.03721
.200	-2.020	.42600	.06230	.04440	.43030	-.01515	-.00390	.00500	.03900	.61400	.03834
.200	.020	.42240	.06360	.04570	.42690	-.01325	-.00110	.00040	.00300	.61200	.03695
.200	2.030	.42500	.06260	.04560	.42940	-.01473	.00150	-.00410	-.03100	.61300	.03755
.200	4.010	.42360	.06100	.04270	.42770	-.01600	.00430	-.00880	-.06700	.61500	.03724
.200	6.060	.42840	.05940	.03790	.43210	-.01644	.00840	-.01420	-.10500	.61900	.03649
.200	8.060	.43550	.05680	.03430	.43860	-.02229	.01280	-.01970	-.14500	.62300	.04172
.200	10.100	.43760	.05490	.03050	.44030	-.02454	.01700	-.02440	-.18200	.62600	.04301
.200	12.120	.44500	.03270	.02850	.44720	-.02806	.01990	-.02800	-.22000	.62800	.04505
.200	14.160	.44640	.05040	.02750	.44820	-.03060	.02130	-.03040	-.25200	.62900	.04666
GRADIENT	-.00034	-.00004	-.00004	.00012	-.00034	.00001	.00137	-.00232	-.01757	-.00015	-.00004

DATE 05 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 41

04110 B61C11F12M51M24E40V19R17X29

(RF5041) (58 MAY 74)

REFERENCE DATA

SREF = 4.4119 38.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0425 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -20.000 SPOBRK = 25.000

RUN NO. 41/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDP	CLM	CN	CAF	CYN	CBL	CV	XCP/L	CAB
.200	-14.140	.44520	.05220	.02790	.44750	-.02068	-.00380	.02260	.20800	.62900	.04254
.200	-12.130	.44220	.05460	.03220	.44480	-.02573	.00010	.01620	.17400	.62500	.04391
.200	-10.090	.43580	.05890	.03670	.43930	-.02037	.00470	.01150	.13500	.62100	.04200
.200	-8.060	.43080	.06290	.04180	.43510	-.01546	.01070	.00560	.09500	.61600	.04096
.200	-6.030	.42140	.06340	.04650	.42630	-.01133	.01610	-.00030	.05100	.61200	.03966
.200	-4.040	.41710	.06710	.05190	.42240	-.00885	.01960	-.00510	.01400	.60600	.03949
.200	-2.020	.41210	.06880	.05370	.41770	-.00631	.02210	-.00990	-.01900	.60400	.03874
.200	.010	.41040	.06950	.05360	.41610	-.00579	.02460	-.01440	-.05400	.60400	.03874
.200	2.030	.41250	.06940	.05190	.41820	-.00579	.02700	-.01880	-.08800	.60600	.03880
.200	4.010	.41760	.06760	.04920	.42290	-.00845	.02910	-.02320	-.12200	.60900	.04039
.200	6.050	.41880	.06480	.04530	.42360	-.01159	.03260	-.02850	-.16000	.61200	.04149
.200	8.080	.42540	.06260	.03970	.42970	-.01478	.03470	-.03200	-.19500	.61600	.04492
.200	10.100	.43050	.06020	.03970	.43430	-.01801	.03640	-.03490	-.22800	.61800	.04799
.200	12.120	.43190	.06070	.04140	.43580	-.01780	.03290	-.03430	-.25100	.61700	.04932
.200	14.140	.43450	.05930	.04130	.43610	-.01974	.03280	-.03620	-.27800	.61700	.05256
GRADIENT		.00007	.00008	-.00006	.00007	.00007	.00119	-.00224	-.01692	.00040	.00009

DATE 05 AUG 74

TABULATED SOURCE DATA - Q4110

PAGE 42

Q4110 B61C11F12M31A24E45V19K16X29

(RFS042) (00 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. WARP = 43.5974 INCHES
LREF = 19.2299 INCHES WARP = .0000 INCHES
BREF = 37.9359 INCHES WARP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -20.000 SPOBRK = 25.000

RUN NO. 42/ 0 RML = 1.42 GRADIENT INTERV = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CTN	CBL	CT	XCF/L	CAB
.200	-14.140	.44590	.05080	.02730	.44770	-.03913	-.00370	.02060	.20900	.62900	.04467
.200	-12.100	.44530	.05640	.03180	.44330	-.02357	.00040	.01630	.17200	.62500	.04232
.200	-10.060	.43320	.05950	.03660	.43690	-.01926	.00500	.01140	.13400	.62100	.04171
.200	-8.090	.42750	.06300	.04190	.43190	-.01474	.01020	.00610	.09400	.61600	.04085
.200	-6.010	.42130	.06610	.04720	.42630	-.01064	.01610	-.00020	.05100	.61100	.04037
.200	-4.050	.41310	.06860	.05220	.41870	-.00667	.01950	-.00530	.01400	.60600	.03852
.200	-2.010	.41100	.06970	.05440	.41760	-.00535	.02210	-.00980	.01900	.60400	.03939
.200	.000	.40920	.07040	.05450	.41520	-.00414	.02430	-.01400	-.00300	.60300	.03900
.200	2.010	.41230	.06930	.05300	.41800	-.00582	.02670	-.01840	-.00800	.60500	.03972
.200	4.030	.41020	.06830	.05080	.41500	-.00639	.02850	-.02280	-.01200	.60700	.03921
.200	6.070	.41960	.06500	.04670	.42450	-.01137	.03200	-.02770	-.01500	.61100	.04277
.200	8.110	.42310	.06380	.04390	.42760	-.01321	.03280	-.03050	-.01900	.61400	.04485
.200	10.110	.42560	.06210	.04310	.42990	-.01327	.03120	-.03150	-.02180	.61500	.04780
.200	12.130	.42940	.06210	.04210	.43360	-.01598	.03110	-.03290	-.02470	.61600	.04956
.200	14.160	.43040	.05910	.04170	.43400	-.01913	.03120	-.03520	-.02750	.61600	.05305
GRADIENT		-.00026	-.00005	-.00021	-.00027	.00001	.00112	-.00216	-.01680	.00015	.00008

04110 061C11F12M51A24E40V19415429

(RFS043) (30 MAY 74)

REFERENCE DATA

SREF = 4.4119 INCHES
 LREF = 19.2299 INCHES
 BREF = 37.9359 INCHES
 SCALE = .0425 SCALE

PARAMETRIC DATA

BETA = .000
 ELEVON = .000
 RUDDER = .000

RUN NO. 43/ 0 RWL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	ALPHA	CL	CLW	CN	CAF	CYN	CBL	CY	ACP/L	CAB
.200	-4.180	-3.0010	.07740	-.30500	.05533	-.00150	.00060	.00400	.76300	.05727
.200	-2.120	-.20430	.06690	-.20660	.05936	-.00140	.00060	.00300	.81200	.05569
.200	-1.060	-.15350	.06960	-.15470	.05920	-.00130	.00050	.00200	.86500	.05578
.200	-.950	-.10610	.06940	-.10610	.06069	-.00150	.00040	.00300	.96100	.05370
.200	.970	-.06120	.06800	-.06020	.05953	-.00140	.00030	.00300	1.19000	.05412
.200	2.010	-.01170	.06750	-.05970	.05756	-.00140	.00030	.00200	3.96300	.05339
.200	4.090	.06260	.06610	.06650	.05111	-.00130	.00050	.00200	.28600	.05251
.200	6.150	.17690	.06500	.18450	.04223	-.00120	.00020	.00100	.48000	.05089
.200	8.290	.28550	.06460	.29300	.03082	-.00110	.00020	.00000	.54500	.04931
.200	10.320	.38010	.06370	.38950	.01720	-.00110	.00010	.00000	.56900	.04962
.200	12.410	.46170	.06200	.49370	.00216	-.00110	.00000	.00000	.58600	.04993
.200	14.510	.59810	.14040	.61420	-.01390	-.00120	-.00040	.00000	.60000	.05155
.200	16.560	.72720	.18320	.74980	-.03001	-.00140	-.00030	.00000	.61400	.05296
.200	18.640	.84350	.25910	.87570	-.04372	-.00180	-.00020	.00000	.62100	.05353
.200	20.780	.95670	.30240	1.00180	-.05665	-.00110	-.00070	.00100	.62500	.05575
.200	22.840	1.07440	.40010	1.14540	-.04923	-.00100	-.00030	.00000	.63400	.06223
.200	24.960	1.16070	.47500	1.23270	-.05928	.00100	.00480	-.01200	.63500	.06822
.200	27.040	1.20540	.54850	1.32300	-.06541	-.00020	.00750	-.01000	.63200	.07319
.200	29.040	1.14930	.58020	1.28650	-.05502	-.00510	.00460	.01000	.61000	.07625
.200	31.010	1.00400	.56820	1.15330	-.03028	-.00320	-.00480	.01900	.59000	.07690
.200	GRADIENT	.04626	-.00240	.04754	-.00047	.00002	-.00003	-.00021	.10822	-.05058

QAL10 861C11F12H31M24E00V19R15X29

(RFS5044) (50 MAY 74)

REFERENCE DATA

BREF = 4.4119 SQ.FT. WARP = 43.5974 INCHES
LREF = 19.2299 INCHES WARP = .5505 INCHES
BREF = 37.9359 INCHES WARP = 15.1875 INCHES
SCALE = .5405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SFOBRK = 85.000

RUN NO. 44/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.05/ 6.00

MACN	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	.42420	.06880	.05330	.42970	-.00852	-.02690	.03220	.25600	.60600	.05742
.200	-12.120	.41710	.07290	.05920	.42340	-.00320	-.02270	.02800	.21900	.60000	.05729
.200	-10.090	.40850	.07510	.06380	.41530	.00050	-.01870	.02370	.18200	.59500	.05688
.200	-8.060	.40110	.07840	.06950	.40870	.00506	-.01470	.01900	.14500	.58900	.05436
.200	-6.030	.39420	.08180	.07640	.40250	.00973	-.00960	.01370	.10300	.58200	.05259
.200	-4.040	.38480	.08440	.08270	.39370	.01397	-.00510	.00840	.06700	.57400	.04993
.200	-2.050	.38150	.08640	.08640	.39040	.01632	-.00270	.00370	.03400	.57000	.04977
.200	-.010	.38050	.08880	.08770	.38970	.01720	-.00090	.00030	.00200	.56900	.04958
.200	2.020	.37880	.08820	.08670	.38810	.01683	.00050	-.00330	-.03000	.56900	.05028
.200	4.060	.37980	.08400	.08340	.38850	.01451	.00270	-.00720	-.06400	.57300	.05079
.200	6.040	.36960	.08260	.07960	.39810	.01134	.00700	-.01290	-.10300	.57800	.05366
.200	8.080	.39440	.07840	.07180	.40210	.00634	.01180	-.01800	-.14300	.58600	.05493
.200	10.110	.40410	.07370	.06470	.41110	.00193	.01650	-.02290	-.18300	.59400	.05530
.200	12.120	.41290	.07260	.06540	.41930	-.00255	.02090	-.02740	-.22100	.59900	.05614
.200	14.160	.41700	.06710	.05330	.42220	-.00882	.02580	-.03240	-.26100	.60500	.05609
GRADIENT	-.00065	-.00065	-.00005	.00008	-.00065	.00007	.00093	-.00189	-.01610	-.00015	.00011

DATE 53 AUG 74

TABULATED SOURCE DATA - 04110

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04110 001C11F12H51M24E20M17R17Z53

(RFS045) (00 MAY 74)

REFERENCE DATA

REF = 4.4119 50 FT. WARP = 43.9974 INCHES
LREF = 19.2299 INCHES WARP = .0020 INCHES
WREF = 37.9359 INCHES WARP = 15.1875 INCHES
SCALE = .0425 SCALE

PARAMETRIC DATA

BETA = .000 BCDLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPCORR = 95.900

RUN NO. 45/ 0 RWL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	ALPHA	CL	CDP	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-4.100	-3.0250	.07870	.09150	-.30740	.05648	-.00180	.00090	.00400	.78150	.05504
.200	-2.500	-.20200	.06820	.04970	-.20430	.05083	-.00150	.00050	.00300	.81350	.05510
.200	-1.000	-.11250	.06190	.04910	-.15360	.05912	-.00150	.00040	.00300	.86500	.05500
.200	-.020	-.10530	.05910	.04900	-.10530	.05909	-.00150	.00030	.00300	.96300	.05514
.200	.990	-.06010	.05690	.04800	-.05910	.05753	-.00160	.00040	.00300	1.20300	.05564
.200	2.050	-.01250	.05610	.04720	-.01050	.05655	-.00140	.00050	.00300	3.70650	.05397
.200	4.100	.04540	.05710	.04640	.04430	.05122	-.00130	.00030	.00200	.27400	.05187
.200	6.190	.17790	.06110	.04460	.18340	.04164	-.00120	.00020	.00100	.48200	.05084
.200	8.200	.27630	.07110	.04320	.28370	.03063	-.00120	.00040	.00200	.94100	.04944
.200	10.330	.37930	.08530	.04700	.38850	.01594	-.00130	.00030	.00200	.96900	.05068
.200	12.420	.48420	.10790	.04750	.49600	.00110	-.00120	.00000	.00000	.58700	.05597
.200	14.520	.60050	.14030	.04510	.61600	-.01466	-.00150	-.00020	.00100	.60150	.05170
.200	16.600	.72310	.18420	.07760	.74760	-.03564	-.00160	-.00020	.00100	.61300	.05350
.200	18.700	.84400	.23060	.07150	.87600	-.04467	-.00180	-.00010	.00200	.62200	.05430
.200	20.800	.95740	.30060	.07030	1.00160	-.05910	-.00120	-.00040	.00200	.62600	.05777
.200	22.900	1.07600	.40030	.05370	1.14700	-.05010	-.00090	-.00090	.00100	.63400	.06265
.200	24.970	1.16360	.47620	.05410	1.25590	-.05963	-.00080	.00360	-.00000	.63600	.06435
.200	27.040	1.20160	.54560	.07200	1.31830	-.06053	-.00080	.00750	-.00000	.63200	.07307
.200	29.050	1.15310	.54310	.11200	1.29120	-.05016	-.00470	.00140	.01300	.62000	.07562
.200	30.970	1.00890	.59850	.16760	1.15490	-.03244	-.00410	-.00560	.02400	.59050	.07063
GRADIENT	.04612	-.00257	-.00059	.04716	-.00063	-.00063	-.00003	-.00006	-.00016	.00668	-.00042

0A110 861C11F12M51M24E45V19R17X29

(REF5046) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 58.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BOFLAP = -12.000
 ELEVON = .000 ALLRON = .000
 RUDDER = .000 SPDRK = 85.000

RUN NO. 46/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	.42600	.06840	.05330	.43210	-.00941	-.02650	.03210	.25400	.60600	.05830
.200	-12.140	.41870	.07300	.05890	.42500	-.00341	-.02250	.02780	.21800	.60100	.05689
.200	-10.110	.41260	.07490	.06170	.41940	-.00051	-.01900	.02390	.18300	.59800	.05661
.200	-8.090	.40300	.07780	.06810	.41040	.00419	-.01450	.01900	.14400	.59100	.05445
.200	-6.040	.39690	.08250	.07620	.40520	.00989	-.00950	.01360	.10400	.58200	.05177
.200	-4.060	.38930	.08360	.08130	.39800	.01238	-.00520	.00830	.06800	.57600	.05061
.200	-2.020	.38610	.08670	.08480	.39540	.01596	-.00280	.00390	.03400	.57300	.04950
.200	.000	.38230	.08620	.08630	.39160	.01619	-.00080	.00040	.00100	.57000	.05050
.200	2.020	.37990	.08650	.08480	.38930	.01694	.00050	-.00310	-.03000	.57100	.04917
.200	4.020	.38140	.08390	.08290	.39030	.01409	.00270	-.00700	-.06400	.57900	.05580
.200	6.060	.39030	.08170	.07910	.39860	.01037	.00700	-.01260	-.10300	.57300	.05446
.200	8.090	.39590	.07850	.07110	.40360	.00616	.01180	-.01810	-.14300	.5700	.05444
.200	10.100	.40820	.07550	.06320	.41510	.00097	.01640	-.02310	-.18200	.55000	.05561
.200	12.140	.41200	.07220	.05890	.41830	-.00295	.02080	-.02740	-.22100	.60000	.05546
.200	14.190	.42290	.06660	.05330	.42800	-.01045	.02600	-.03240	-.26200	.63600	.05692
GRADIENT		-.00109	.00002	.00016	-.00107	.00022	.00095	-.00186	-.01624	-.00010	.00000

REFERENCE DATA

BREF = 4.4119 90.FT.

LREF = 19.2299 INCHES

BREF = 37.9359 INCHES

SCALE = .0405 SCALE

WARP = 43.5974 INCHES

YWRP = .0000 INCHES

ZWRP = 15.1875 INCHES

PARAMETRIC DATA

BETA = .000

ELEVON = .000

RUDDER = .000

SDCLAP = -12.000

AILRON = .000

SPDBRK = 65.000

RUN NO. 47/ 0

RN/L = 1.42

GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-4.100	-.29940	.07650	.09140	-.30420	.05447	-.00150	.00070	.00400	.76200	.05768
.200	-2.110	-.20070	.06690	.08920	-.20310	.05935	-.00150	.00060	.00300	.61300	.05461
.200	-1.080	-.15460	.06170	.08870	-.15580	.05878	-.00150	.00040	.00200	.86100	.05597
.200	-.040	-.10460	.06020	.08850	-.10470	.06018	-.00140	.00030	.00200	.96300	.05337
.200	.970	-.06130	.03750	.08770	-.06030	.05862	-.00140	.00030	.00200	1.18700	.05421
.200	2.020	-.01110	.05680	.08650	-.00910	.05721	-.00140	.00040	.00100	4.14100	.05303
.200	4.100	.07970	.05650	.08590	.08360	.05072	-.00130	.00030	.00100	.27300	.05251
.200	6.170	.17710	.06170	.08570	.18270	.04236	-.00120	.00020	.00000	.47900	.05033
.200	8.240	.27960	.07590	.08520	.28690	.03012	-.00110	.00020	.00000	.54200	.05042
.200	10.310	.37880	.08640	.08660	.38810	.01722	-.00120	.00020	.00000	.57000	.04919
.200	12.450	.48820	.10870	.08820	.50020	.00089	-.00120	-.00020	.00000	.58700	.05094
.200	14.500	.59810	.14130	.08550	.61450	-.01299	-.00130	-.00020	.00000	.60000	.05094
.200	16.590	.72850	.18390	.07700	.75070	-.03185	-.00140	.00000	.00000	.61400	.05462
.200	18.700	.84620	.23850	.07090	.87800	-.04537	-.00180	.00000	.00000	.62200	.05455
.200	20.780	.95110	.30020	.07100	.99570	-.05690	-.00110	-.00070	.00000	.62500	.05566
.200	22.900	1.07470	.40080	.05310	1.14590	-.04909	-.00090	-.00070	.00000	.63500	.06183
.200	24.990	1.16780	.47710	.05580	1.26000	-.06092	.00080	.00310	-.01000	.63500	.06920
.200	27.030	1.20280	.54370	.07280	1.31940	-.06077	.00020	.00630	-.01000	.63100	.07303
.200	29.010	1.19030	.57990	.11260	1.28720	-.05082	-.00500	.00460	.00800	.61900	.07635
.200	30.950	1.00120	.56340	.16860	1.14940	-.03016	-.00410	-.00150	.01600	.59800	.07685
	GRADIENT	.04580	-.00240	-.00065	.04685	-.00045	.00003	-.00004	-.00037	.11530	-.00061

DATE 05 AUG 74

TABULATED SOURCE DATA - ON110

PAGE 48

ON110 B61C11F12M51M24E40V19R16X29

(RF5048) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.9974 INCHES
 LREF = 19.2299 INCHES YMRP = .0050 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0005 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPOBRK = 85.000

RUN NO. 48/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CLM	CDF	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.150	.42660	.05340	.06850	.43190	-.00918	-.02660	.03210	.25500	.60600	.05790
.200	-12.130	.41600	.05640	.07310	.42230	-.00276	-.02270	.02780	.21800	.60100	.05652
.200	-10.110	.41100	.06250	.07600	.41800	.00108	-.01850	.02360	.18200	.59700	.05647
.200	-8.090	.40270	.06820	.07860	.41030	.00512	-.01460	.01900	.14400	.59000	.05459
.200	-6.080	.39610	.07610	.08250	.40440	.01020	-.00960	.01370	.10500	.58200	.05229
.200	-4.060	.38470	.08080	.08490	.39370	.01456	-.00520	.00840	.06800	.57600	.04902
.200	-2.020	.38340	.08630	.08630	.39270	.01613	-.00280	.00400	.03500	.57200	.04993
.200	.000	.37900	.08610	.08610	.39040	.01684	-.00120	.00040	.00300	.57000	.04965
.200	2.010	.38110	.08540	.08540	.39040	.01628	.00040	-.00300	-.02900	.57100	.05013
.200	4.020	.38330	.08280	.08280	.39210	.01375	.00260	-.00730	-.06400	.57400	.05118
.200	6.080	.38600	.07760	.08270	.39460	.01219	.00680	-.01250	-.10200	.57900	.05205
.200	8.080	.39570	.07840	.07840	.40340	.00622	.01160	-.01790	-.14300	.58700	.05302
.200	10.110	.40710	.06320	.07590	.41410	.00172	.01620	-.02300	-.18200	.59500	.05489
.200	12.140	.41320	.05850	.07190	.41940	-.00338	.02070	-.02730	-.22100	.60000	.05603
.200	14.160	.41710	.05220	.06690	.42230	-.00899	.02540	-.03200	-.26000	.60600	.05588
GRADIENT	-.00025	-.00025	.00020	-.00012	-.00027	-.00007	.00093	-.00190	-.01625	-.00025	.00022



DATE 55 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 49

04110 861C11F12M31W24E40V19R16X29

(RF5049) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = -20.000 SFCBRK = 85.000

RUN NO. 49/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.150	.43070	.06080	.43470	-.01742	-.01750	.02720	.23400	.61700	.05777
.200	-12.130	.41670	.06830	.42410	-.05779	-.01190	.02210	.19400	.60800	.05546
.200	-10.120	.41000	.07440	.41670	-.05032	-.00640	.01730	.15500	.59900	.05453
.200	-8.100	.39820	.07930	.40600	.05668	.00000	.01150	.11350	.58900	.05321
.200	-6.070	.39020	.08240	.39870	.01114	.00570	.00560	.07000	.58000	.05266
.200	-4.050	.38650	.08350	.39560	.01486	.00800	.00170	.03600	.57500	.04931
.200	-2.030	.38340	.08670	.39270	.01661	.00890	-.00190	.00300	.57200	.04842
.200	.000	.38260	.08620	.39190	.01629	.01070	-.00560	-.02700	.57200	.04811
.200	2.020	.38250	.08530	.39160	.01543	.01290	-.00980	-.06200	.57400	.04742
.200	4.030	.38450	.08590	.39340	.01361	.01550	-.01470	-.09600	.57700	.04687
.200	6.080	.39130	.08190	.39960	.01046	.01850	-.01900	-.13200	.58200	.04935
.200	8.090	.39780	.07870	.40550	.00613	.02150	-.02360	-.16800	.58700	.05150
.200	10.120	.40430	.07670	.41180	.00492	.02370	-.02730	-.20300	.59100	.05599
.200	12.150	.40730	.07670	.41450	.00241	.02620	-.03030	-.23800	.59400	.05692
.200	14.190	.41000	.07430	.41660	-.00043	.02690	-.03260	-.26700	.59500	.05294
GRADIENT	-.00024	-.00023	-.00036	-.00027	-.00016	.00094	-.00201	-.01036	.00039	-.00029

04110 861C11F12M51M24E40V19R17X29

(RF5050) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. YMR = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -20.000 SPDRK = 85.000

RUN NO. 50/0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDP	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.150	.42800	.06070	.04070	.43000	-.01676	-.01770	.02740	.23300	.61700	.05666
.200	-12.110	.42090	.06770	.04990	.42820	-.00897	-.01200	.02220	.19600	.60900	.05629
.200	-10.120	.41070	.07330	.05930	.41720	-.00156	-.00650	.01750	.15500	.59900	.05514
.200	-8.090	.39680	.07910	.06830	.40460	.00666	-.00010	.01160	.11200	.58900	.05267
.200	-6.040	.39160	.08150	.07700	.39990	.01082	.00540	.00380	.07200	.58100	.05317
.200	-4.050	.38580	.08470	.08250	.39470	.01420	.00770	.00190	.03800	.57500	.04972
.200	-2.010	.38610	.08760	.08460	.39550	.01705	.00860	-.00150	.00600	.57300	.04798
.200	.010	.38060	.08660	.08450	.39000	.01705	.01020	-.00340	-.02600	.57200	.04677
.200	2.040	.38290	.08530	.08250	.39200	.01530	.01250	-.00950	-.06100	.57400	.04736
.200	4.040	.38310	.08330	.08030	.39180	.01332	.01510	-.01430	-.09600	.57600	.04751
.200	6.080	.39150	.08120	.07550	.39970	.00970	.01830	-.01880	-.13200	.58200	.04983
.200	8.090	.39720	.08040	.07320	.40320	.00787	.02150	-.02340	-.16800	.58800	.05002
.200	10.120	.40390	.07800	.06720	.41130	.00429	.02440	-.02760	-.20400	.59200	.05113
.200	12.150	.40990	.07620	.06480	.41690	.00146	.02700	-.03080	-.23800	.59400	.05170
.200	14.180	.41330	.07290	.06270	.41970	-.00237	.02780	-.03320	-.26900	.59700	.05387
GRADIENT	-.00043	-.00025	-.00032	-.00032	-.00046	-.00017	.00092	-.00200	-.01656	.00015	-.00025

ON110 061C11F12M51M24E40V19R15X29

(RF5051) (06 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1075 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = -20.000 SPCBRK = 85.000

RUN NO. 51/ 0 RV/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.150	.43410	.06110	.04120	.43800	-.01789	-.01800	.02760	.23600	.61700	.05760
.200	-12.120	.41990	.06790	.05160	.42520	-.05062	-.01220	.02260	.19600	.60700	.05603
.200	-10.100	.40980	.07340	.06040	.41630	-.00136	-.00660	.01770	.15500	.59800	.05543
.200	-8.100	.39810	.07830	.06930	.40570	.00556	-.00030	.01190	.11200	.58900	.05398
.200	-6.020	.39160	.08320	.07750	.40020	.01156	.00330	.00590	.07200	.58000	.05180
.200	-4.060	.38670	.08610	.08360	.39590	.01523	.00770	.00180	.03800	.57400	.04893
.200	-2.020	.38260	.08710	.08600	.39250	.01701	.00840	-.00150	.00700	.57100	.04783
.200	.000	.38280	.08680	.08580	.39220	.01665	.01010	-.00530	-.02600	.57100	.04766
.200	2.020	.38340	.08590	.08500	.39250	.01531	.01230	-.00960	-.06000	.57400	.04715
.200	4.030	.38440	.08390	.08090	.39330	.01358	.01500	-.01410	-.09500	.57600	.04759
.200	6.060	.39030	.08190	.07850	.39870	.01052	.01810	-.01860	-.13000	.58100	.04925
.200	8.090	.39810	.07990	.07150	.40600	.00709	.02140	-.02320	-.16800	.58700	.05057
.200	10.130	.40470	.07830	.06850	.41220	.00435	.02420	-.02730	-.20400	.59000	.05165
.200	12.150	.41070	.07610	.06510	.41770	.00104	.02700	-.03080	-.23900	.59400	.05184
.200	14.180	.41600	.07360	.06360	.42240	-.00235	.02810	-.03330	-.27000	.59600	.05366
GRADIENT	-.00019	-.00030	-.00030	-.00035	-.00023	-.00025	.00091	-.00197	-.01647	.00034	-.00017

04110 861C11F12M51M24E40V21R15X29

(RF5052) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LEEF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1275 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BCFAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -20.000 SPOBRK = 85.000

RUN NO. 52/ 0 RV/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	P-TA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.150	.42740	.56190	.04560	.43150	-.01601	-.02010	.02930	.23900	.61300	.05822
.200	-12.150	.41690	.56920	.05660	.42260	-.00691	-.01560	.02420	.20400	.60200	.05700
.200	-10.110	.40960	.57490	.06380	.41640	.00004	-.00960	.01890	.16400	.59500	.05670
.200	-8.080	.39370	.58070	.07290	.40360	.00826	-.00330	.01340	.12000	.58500	.05311
.200	-6.060	.38650	.58320	.08100	.39320	.01237	.00310	.00710	.07800	.57600	.05315
.200	-4.060	.38080	.58660	.08550	.39020	.01685	.00610	.00270	.04200	.57100	.04923
.200	-2.020	.38070	.58760	.08820	.39030	.01778	.00680	-.00080	.01200	.56800	.04889
.200	.000	.37830	.58870	.08780	.38810	.01932	.00850	-.00450	-.02100	.56800	.04686
.200	2.020	.37900	.58800	.08570	.38960	.01847	.01080	-.00860	-.05700	.57100	.04619
.200	4.020	.38430	.58550	.08320	.39350	.01511	.01390	-.01350	-.09300	.57400	.04819
.200	6.060	.38980	.58360	.07920	.39950	.01226	.01740	-.01830	-.12900	.57900	.04984
.200	8.090	.39370	.58040	.07300	.40180	.00833	.02090	-.02300	-.16600	.58500	.05068
.200	10.120	.40370	.57880	.06980	.41320	.00460	.02390	-.02710	-.20200	.59000	.05292
.200	12.140	.40990	.57680	.56710	.41700	.00168	.02620	-.03030	-.23700	.59200	.05339
.200	14.170	.41020	.57410	.56530	.41680	-.00079	.02740	-.03270	-.26800	.59400	.05415
GRADIENT	.00026	.00009	-.00009	-.00035	.00024	-.00014	.00097	-.00199	-.01678	.00044	-.00024

0A110 B61C11F12H51A24E40V2R15X29

(RF5053) (28 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XGRP = 43.5974 INCHES
LREF = 19.2299 INCHES YGRP = .0000 INCHES
BREF = 37.9359 INCHES ZGRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPCBRK = 85.000

RUN NO. 53/ 0 RNL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	.41190	.06390	.41790	-.05433	-.02380	.03180	.23200	.59300	.05965
.200	-12.130	.40790	.06910	.41480	.00110	-.02280	.02820	.21800	.59000	.05769
.200	-10.120	.40020	.07340	.40770	.00514	-.01850	.02390	.18100	.58500	.05705
.200	-8.080	.38870	.08160	.39740	.01231	-.01440	.01900	.14400	.57800	.05460
.200	-6.070	.37950	.08660	.38890	.01723	-.00910	.01320	.10400	.56700	.05388
.200	-4.050	.37090	.09630	.38090	.02137	-.00450	.00810	.06500	.55900	.05191
.200	-2.010	.36760	.10160	.37820	.02479	-.00250	.00360	.03300	.55300	.05126
.200	.010	.36340	.10190	.37690	.02526	-.00050	.00020	.00000	.55200	.05067
.200	2.020	.36600	.10110	.37670	.02569	.00080	-.00340	-.03300	.55300	.05047
.200	4.040	.36930	.09780	.37960	.02318	.00240	-.00750	-.06500	.55700	.05165
.200	6.090	.37130	.09220	.38080	.01911	.00680	-.01260	-.10500	.56300	.05407
.200	8.090	.38240	.08330	.39120	.01347	.01150	-.01790	-.14300	.57300	.05512
.200	10.110	.39630	.07490	.40380	.00533	.01630	-.02320	-.18500	.58300	.05760
.200	12.140	.40160	.07250	.40890	.00390	.02040	-.02730	-.22100	.58600	.05594
.200	14.160	.40810	.06660	.41430	-.00299	.02530	-.03230	-.26300	.59200	.05679
GRADIENT	-.00024	.00019	.00013	-.00020	.00022	.00085	-.00189	-.01613	-.00020	-.00007

ON110 861C11F12M51M24E45V2R15X29

(RF5054) (58 MAY 74)

REFERENCE DATA

XREF = 4.4119 90.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 EREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BOFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPDRK = 89.000

RUN NO. 54/0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CBL	CV	XCP/L	CAB
.200	-4.190	-.30470	.08160	.09780	-.30990	.05918	-.00070	.00010	.00200	.76800	.05711
.200	-2.120	-.21530	.07820	.10700	-.21800	.06816	-.00100	.00050	.00200	.83200	.05608
.200	-1.080	-.16450	.07220	.10540	-.16580	.06912	-.00110	.00020	.00200	.88600	.05487
.200	-.040	-.11710	.06780	.10560	-.11720	.06775	-.00110	.00020	.00200	.98300	.05698
.200	.980	-.06980	.06680	.10260	-.06870	.06804	-.00110	.00020	.00100	1.20200	.05471
.200	2.020	-.02310	.06450	.10330	-.02080	.06536	-.00110	.00030	.00200	2.47100	.05513
.200	4.070	.06640	.06520	.10190	.07280	.06021	-.00100	.00000	.00100	.13700	.05298
.200	6.170	.16280	.06820	.10190	.16910	.05032	-.00100	.00000	.00000	.43000	.05292
.200	8.230	.26390	.07850	.10080	.27240	.03987	-.00100	.00020	.00000	.51600	.05059
.200	10.310	.36430	.09180	.10210	.37490	.02314	-.00100	.00020	.00000	.55100	.05141
.200	12.400	.46860	.11230	.10300	.48180	.00898	-.00110	.00000	.00000	.57300	.05213
.200	14.500	.58700	.14440	.10130	.60450	-.00713	-.00110	-.00040	.00000	.59000	.05306
.200	16.590	.71330	.18790	.09270	.75730	-.02370	-.00120	-.00010	-.00100	.60500	.05441
.200	18.680	.83150	.24350	.08670	.86570	-.03572	-.00190	.00000	.00200	.61500	.05378
.200	20.790	.94200	.30590	.08840	.98930	-.04840	-.00120	-.00030	.00000	.61900	.05378
.200	22.880	1.06120	.40250	.08900	1.13420	-.04191	-.00170	.00000	.00100	.62900	.06218
.200	24.970	1.18410	.48190	.06180	1.25870	-.05466	.00080	.00000	-.00100	.63400	.06876
.200	27.040	1.21860	.55860	.07230	1.33940	-.05658	.00030	.01050	-.01600	.63200	.07293
.200	29.020	1.14760	.58420	.11790	1.28690	-.04801	-.00820	.00530	.01200	.61800	.07618
.200	30.930	.98410	.55690	.17280	1.13040	-.02819	-.00070	-.00750	.01900	.59500	.07904
.200	.04545	-.00216	-.00216	.00016	.04662	-.05006	-.00004	.00001	-.00012	.02507	-.00043

GRADIENT

DATE 05 AUG 74

TABULATED SOURCE DATA - 0A110

PAGE 55

0A110 B61C11F12M51A24E40V21R15X29

(RF5055) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 36-FT. YMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.500
ELEVON = .000 AILRON = .000
RUDDER = -20.000 SPOBRK = 25.000

RUN NO. 55/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.250	-14.190	.44270	.03260	.02820	.44500	-.02760	-.00470	.02130	.21200	.62800	.04325
.250	-12.120	.43690	.05620	.03280	.43990	-.02300	-.00120	.01720	.17600	.62400	.04200
.250	-10.100	.43050	.06000	.03770	.43430	-.01814	.00410	.01230	.13700	.62000	.04202
.250	-8.070	.42520	.06250	.04340	.42950	-.01473	.01010	.00630	.09500	.61400	.04315
.250	-6.050	.41830	.06570	.04790	.42330	-.01034	.01570	.00000	.05300	.61000	.04110
.250	-4.030	.41240	.06910	.05250	.41810	-.00583	.01930	-.00510	.01500	.60500	.03852
.250	-2.020	.40750	.07070	.05480	.41360	-.00346	.02180	-.00950	-.01800	.60300	.03772
.250	.510	.40620	.06990	.05490	.41210	-.00399	.02430	-.01420	-.05300	.60300	.03912
.250	2.020	.41030	.06980	.05210	.41620	-.00478	.02700	-.01870	-.08900	.60600	.03901
.250	4.020	.41260	.06720	.04810	.41800	-.00773	.02930	-.02330	-.12300	.60900	.04034
.250	6.070	.41730	.06460	.04490	.42220	-.01124	.03320	-.02860	-.16100	.61300	.04209
.250	8.090	.42440	.06280	.04080	.42870	-.01428	.03480	-.03180	-.19500	.61700	.04558
.250	10.110	.43020	.06050	.03810	.43410	-.01754	.03680	-.03520	-.22900	.61900	.04840
.250	12.140	.43120	.06050	.04000	.43510	-.01775	.03390	-.03480	-.25300	.61800	.05031
.250	14.160	.43190	.05930	.04120	.43550	-.01907	.03290	-.03590	-.27900	.61700	.05290
GRADIENT		.00016	-.00023	-.00057	.00012	-.00025	.00125	-.00223	-.01719	.00054	.00024

Q1110 861C11F12M51M24E40V21R15X29

REFERENCE DATA

BREF = 4.4119 SQ.FT. XMRP = 43.9974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVEN = .000 AIRCON = .000
 RUDDER = .000 SFCBRK = 25.000

RUN NO. 56/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.110	.45050	.02760	.45210	-.03212	-.02390	.03160	.25000	.62900	.04928
.200	-12.120	.44520	.02850	.44740	-.02799	-.02250	.02950	.22100	.62800	.04615
.200	-10.090	.44240	.03030	.44320	-.02487	-.02010	.02560	.18600	.62700	.04354
.200	-8.090	.43700	.03370	.44020	-.02191	-.01560	.02080	.14800	.62300	.04139
.200	-6.060	.43120	.03750	.43500	-.01825	-.01100	.01530	.10800	.62000	.03831
.200	-4.030	.42710	.04250	.43120	-.01637	-.00650	.00970	.07100	.61500	.03661
.200	-2.010	.42260	.04820	.42700	-.01428	-.00340	.00470	.03600	.61000	.03416
.200	.000	.42070	.05450	.42350	-.01290	-.00060	.00000	.00200	.61200	.03713
.200	2.020	.42050	.06150	.42490	-.01374	.00210	-.00450	-.03400	.61300	.03768
.200	4.030	.42080	.06850	.42500	-.01502	.00480	-.00930	-.06800	.61500	.03782
.200	6.090	.42750	.03780	.43080	-.01914	.00920	-.01500	-.10900	.61900	.03969
.200	8.090	.43200	.03440	.43530	-.02101	.01380	-.02050	-.14800	.62300	.04109
.200	10.110	.44290	.03030	.44570	-.02469	.01830	-.02570	-.18700	.62700	.04395
.200	12.130	.44190	.02870	.44430	-.02701	.02080	-.02860	-.22300	.62800	.04540
.200	14.170	.44280	.02800	.44460	-.03057	.02260	-.03150	-.25600	.62800	.04759
GRADIENT		-.00002	-.00002	-.00072	.00016	.00139	-.00234	-.01727	-.00000	-.00016

DATE 05 AUG 74

TABULATED SOURCE DATA - 0A110

PAGE 57

0A110 061C11F12M51A24E45V21R15X29

(HF5057) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. YMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .5005 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0455 SCALE

PARAMETRIC DATA

BETA = .000 BOFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDELA = .000 SPOBRK = 25.000

RUN NO. 57/ 0 RNL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CM	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-4.170	-26690	.04460	.04980	-.26940	.02508	-.00050	.00010	.00000	.72000	.03956
.250	-2.580	-16540	.03420	.04670	-.16650	.02815	-.00050	.00320	.00000	.75500	.03891
.200	-1.970	-11970	.03150	.04660	-.12020	.02925	-.00060	.00000	.00000	.79400	.03880
.250	-.020	-06690	.02060	.04640	-.06690	.02861	-.00070	.00000	.00100	.90700	.03954
.200	1.000	-.02210	.02820	.04610	-.02160	.02865	-.00050	.00000	.00000	1.43600	.03850
.250	2.040	.02300	.02050	.04620	.02410	.02767	-.00040	.00010	.00000	-.05300	.03767
.200	4.080	.11760	.03080	.04580	.11950	.02242	-.00060	.00010	.00000	.51100	.03679
.250	6.170	.21660	.03690	.04540	.21950	.01341	-.00050	.00010	.00000	.57500	.03631
.200	8.200	.32050	.04630	.04450	.32390	-.00014	-.00060	.00000	.00000	.65100	.03761
.250	10.330	.41590	.06320	.04600	.42050	-.01240	-.00050	-.00010	.00000	.61100	.03694
.200	12.420	.52690	.08660	.04670	.53320	-.02878	-.00060	-.00030	.00000	.61900	.03907
.250	14.520	.64270	.11970	.04470	.63220	-.04534	-.00060	-.00080	.00000	.62600	.04108
.200	16.610	.77290	.16530	.03430	.78800	-.06250	-.00080	-.00050	-.00100	.63600	.04296
.250	18.710	.89460	.22230	.02060	.91870	-.07850	-.00120	-.00040	.00000	.64000	.04497
.200	20.810	1.00230	.28630	.02680	1.03860	-.08853	-.00080	-.00070	.00000	.64200	.04659
.250	22.890	1.12770	.38050	.00760	1.19000	-.08083	-.00030	-.00090	-.00100	.64900	.05389
.200	25.000	1.22090	.47060	.01100	1.30540	-.08965	-.00160	.00420	-.01400	.64900	.05860
.250	27.060	1.26230	.54820	.02380	1.37350	-.08623	.00030	.01260	-.01900	.64500	.06145
.200	29.030	1.17930	.56670	.07290	1.35640	-.07693	-.00090	.01130	.00200	.63100	.07106
.250	30.930	1.00520	.54040	.12480	1.14000	-.05310	-.00050	-.00730	.01700	.61100	.07513
	GRADIENT	.04647	-.00162	-.00040	.04700	-.00028	-.00000	-.00000	.00000	-.04103	-.00032

04119 061C11F12451425E45V19415209

(KF5058) (98 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. WARP = 43.9974 INCHES
 LREF = 19.2299 INCHES WARP = .0000 INCHES
 BREF = 37.9359 INCHES WARP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPDRK = 25.000

RUN NO. 58/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-4.190	-2.6650	.04420	.04890	-.26900	.02459	-.00060	.00030	.00200	.71900	.03803
.200	-2.120	-1.16640	.03440	.04720	-.16760	.02824	-.00030	.00040	.00300	.75500	.03822
.200	-1.070	-1.1840	.03140	.04650	-.11900	.02920	-.00070	.00020	.00200	.79600	.03825
.200	-.040	-.06840	.02930	.04600	-.06840	.02931	-.00030	.00020	.00100	.89900	.03747
.200	1.000	-.02180	.02790	.04570	-.02130	.02831	-.00030	.00030	.00100	1.43900	.03825
.200	2.030	.02840	.02950	.04490	.02940	.02891	-.00030	.00020	.00100	.09500	.03663
.200	4.040	.12180	.02950	.04400	.12360	.02084	-.00030	.00020	.00100	.92000	.03814
.200	6.190	.22260	.03690	.04270	.22330	.01271	-.00030	.00010	.00000	.58200	.03594
.200	8.290	.32610	.04740	.04150	.32950	.00013	-.00030	.00010	.00100	.60500	.03696
.200	10.340	.43180	.06330	.04160	.43620	-.01501	-.00060	.00000	.00100	.61700	.03837
.200	12.420	.53490	.04950	.04050	.54520	-.02841	-.00060	-.00020	.00000	.62400	.03784
.200	14.540	.63770	.12320	.03840	.68560	-.04531	-.00070	-.00070	.00000	.63000	.03969
.200	16.600	.71910	.16610	.03380	.79930	-.06199	-.00080	-.00030	.00000	.63600	.04226
.200	18.670	.84130	.21830	.03060	.90780	-.07819	-.00100	-.00020	.00000	.63900	.04328
.200	20.600	1.00290	.28640	.02720	1.04210	-.08953	-.00110	-.00030	.00100	.64200	.04641
.200	22.900	1.13330	.36990	.00760	1.19570	-.04201	-.00020	.00000	-.00100	.64900	.05382
.200	25.010	1.23790	.47790	.00560	1.32330	-.09009	.00170	.00070	-.01600	.65000	.05878
.200	27.070	1.28890	.59990	.01450	1.40290	-.08823	.00030	.01800	-.02400	.64800	.06291
.200	28.960	1.10980	.54090	.04970	1.23290	-.06418	-.00260	-.02120	.03700	.62500	.07255
.200	30.930	1.02200	.54740	.12290	1.15610	-.05993	.00000	-.00780	.01860	.61300	.07621
.200	GRADIENT	.04894	-.00188	-.00056	.04746	-.00037	.00001	-.00002	-.00021	-.03396	-.00014

0A110 861C11F12M61M25E40V19R15X29

(RF5559) (50 MAY 74)

REFERENCE DATA

REF = 4.4119 87.1 FT. WARP = 43.5974 INCHES
 LREF = 19.2295 INCHES WARP = .0000 INCHES
 BREF = 37.9359 INCHES WARP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BCFAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = .000 SPOBRK = 25.000

RUN NO. 59/ 0 RINL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	KCP/L	CAB
.200	-14.140	.46490	.02240	.46690	-.03137	-.02420	.03240	.24900	.63450	.54800
.200	-12.120	.46140	.02300	.46400	-.02769	-.02280	.02990	.21800	.63300	.54536
.200	-10.120	.45340	.02340	.45850	-.02459	-.02000	.02610	.18400	.63100	.54307
.200	-8.100	.45040	.02300	.45410	-.02127	-.01580	.02140	.14600	.62800	.54065
.200	-6.080	.44700	.02310	.45100	-.01864	-.01100	.01570	.11800	.62500	.53828
.200	-4.060	.44600	.02370	.45040	-.01642	-.00660	.01020	.07000	.62100	.53793
.200	-2.020	.43850	.03970	.44320	-.01425	-.00360	.00510	.03700	.61900	.53719
.200	.000	.43650	.04120	.44130	-.01323	-.00050	.00020	.00200	.61700	.53685
.200	2.020	.43310	.03990	.43990	-.01351	.00210	-.00460	-.03300	.61800	.53675
.200	4.020	.43450	.03770	.43890	-.01520	.00500	-.00960	-.06900	.62000	.53721
.200	6.030	.44150	.03390	.44540	-.01853	.00940	-.01510	-.10400	.62400	.53909
.200	8.090	.44830	.03040	.45170	-.02191	.01400	-.02060	-.14900	.62700	.54151
.200	10.100	.45320	.02680	.45620	-.02509	.01820	-.02580	-.18600	.63000	.54385
.200	12.120	.45310	.02510	.45580	-.02672	.02070	-.02900	-.22300	.63100	.54503
.200	14.150	.45730	.02410	.45930	-.02691	.02260	-.03230	-.25500	.63200	.54733
GRADIENT	-.00131	-.00009	.00006	-.00130	.00016	.00143	-.00244	-.01723	-.00015	-.00009

0A110 B61C11F12M51A24E40V02R15X29

(RF5066) (06 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. YMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0495 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEWON = .000 AILRON = .000
 RUDDER = .000 SPOBRK = 25.000

RUN NO. 60/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.110	.45240	.04930	.02480	.45390	-.03282	-.02400	.03220	.25100	.63200	.04749
.200	-12.120	.44420	.03220	.02700	.44630	-.02848	-.02280	.02950	.22200	.62900	.04491
.200	-10.100	.43760	.03430	.02990	.44030	-.02522	-.01950	.02540	.18400	.62700	.04327
.200	-8.080	.43490	.03760	.03400	.43810	-.02142	-.01550	.02040	.14800	.62300	.04011
.200	-6.070	.42720	.03960	.03780	.43100	-.01803	-.01090	.01510	.11000	.61900	.03600
.200	-4.040	.42690	.06190	.04270	.43100	-.01578	-.00650	.00960	.07100	.61500	.03725
.200	-2.010	.42090	.06180	.04460	.42310	-.01480	-.00350	.00460	.03600	.61300	.03770
.200	.010	.41810	.06250	.04580	.42250	-.01353	-.00060	.00010	.00100	.61200	.03721
.200	2.020	.41830	.06260	.04480	.42290	-.01348	.00220	-.00450	-.03800	.61300	.03699
.200	4.020	.42080	.06160	.04250	.42480	-.01491	.00510	-.00940	-.07100	.61500	.03687
.200	6.070	.42590	.05930	.03620	.42970	-.01812	.00970	-.01930	-.11200	.61900	.03461
.200	8.080	.43190	.05680	.03440	.43510	-.02166	.01380	-.02030	-.15000	.62300	.04115
.200	10.120	.43720	.05420	.03030	.43980	-.02521	.01730	-.02490	-.18700	.62600	.04362
.200	12.130	.43950	.05170	.02790	.44170	-.02800	.02060	-.02880	-.22400	.62800	.04459
.200	14.160	.44670	.04900	.02590	.44830	-.03203	.02340	-.03280	-.25900	.63000	.04658
.200	GRADIENT	-.00075	.00001	-.00001	-.00075	.00015	.00143	-.00234	-.01767	-.00000	-.00007

DATE 59 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 61

04110 861C11F12M51M24E40V20R15X29

(RF5061) (58 MAY 74)

REFERENCE DATA

3-ET = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 L-ET = 19.2299 INCHES YMRP = .0000 INCHES
 B-ET = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .5405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDELAP = -12.000
 ELEVON = .000 ALLRON = .000
 RUDDER = -10.000 SPDBRK = 25.000

RUN NO. 61/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLM	CN	CAF	CYN	CBL	CY	KCP/L	C/B
.200	-14.140	.49220	.04950	.43370	-.03255	-.01460	.02690	.23300	.63100	.04514
.200	-12.120	.45040	.05360	.45270	-.02826	-.01170	.02330	.19900	.62900	.04307
.200	-10.090	.44790	.05590	.44360	-.02418	-.00740	.01880	.16200	.62500	.04194
.200	-8.080	.43480	.05970	.43840	-.01940	-.00290	.01330	.12300	.62100	.03925
.200	-6.050	.42930	.06210	.43350	-.01604	.00220	.00750	.08400	.61700	.03763
.200	-4.040	.42220	.06330	.42670	-.01353	.00750	.00160	.04400	.61300	.03704
.200	-2.020	.42010	.06470	.42490	-.01172	.00990	-.00290	.00700	.61000	.03707
.200	.000	.41690	.06480	.42.76	-.01106	.01270	-.00750	-.02900	.61000	.03757
.200	2.030	.42030	.06570	.42530	-.01074	.01560	-.01240	-.06300	.61200	.03699
.200	4.020	.42230	.06380	.42690	-.01306	.01820	-.01730	-.09800	.61400	.03848
.200	6.080	.42800	.06170	.43210	-.01610	.02210	-.02230	-.13700	.61800	.04016
.200	8.080	.43090	.05910	.43450	-.01918	.02570	-.02720	-.17600	.62000	.04292
.200	10.120	.43610	.05630	.43920	-.02289	.02710	-.03030	-.20700	.62300	.04645
.200	12.120	.44320	.05540	.44390	-.02514	.02990	-.03400	-.24400	.62500	.04694
.200	14.160	.44410	.05190	.44620	-.02873	.03110	-.03650	-.27500	.62600	.04974
.200	GRADIENT	.00002	.00010	.00004	.00010	.00139	-.00234	-.01755	.00020	.00014

0A110 061C11F12H51A24G40V20R15X29

(RP5062) (06 MAY 74)

REFERENCE DATA

SHRP = 4.4119 94.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BRFP = 37.9339 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BCFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = -20.000 SPDRBK = 25.000

RUN NO. 62/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	.44920	.03210	.02860	.45120	-.02927	-.00400	.02100	.21000	.63000	.04359
.200	-12.120	.44370	.03610	.03150	.44660	-.02437	.00000	.01650	.17500	.62600	.04272
.200	-10.100	.43500	.03970	.03660	.43870	-.01925	.00600	.01100	.13300	.62100	.04235
.200	-8.080	.42940	.04400	.04220	.43390	-.01396	.01160	.00400	.09200	.61600	.04085
.200	-6.060	.41940	.04730	.04730	.42470	-.00867	.01620	-.00066	.05300	.61100	.03937
.200	-4.050	.41630	.04930	.05250	.42180	-.00732	.02020	-.00560	.01300	.60600	.03964
.200	-2.020	.41300	.07090	.05430	.41910	-.00421	.02290	-.01040	-.02000	.60400	.03883
.200	.010	.41310	.07150	.05410	.41920	-.00356	.02560	-.01490	-.05600	.60400	.03868
.200	2.040	.41080	.07020	.05270	.41670	-.00444	.02780	-.01930	-.09100	.60300	.03936
.200	4.020	.41500	.06930	.04990	.42080	-.00605	.02930	-.02350	-.12500	.60800	.03975
.200	6.090	.42000	.06600	.04500	.42500	-.01025	.03300	-.02850	-.16100	.61300	.04225
.200	8.080	.42710	.06300	.04240	.43140	-.01447	.03580	-.03250	-.19700	.61500	.04663
.200	10.110	.43390	.06140	.03870	.43790	-.01734	.03720	-.03570	-.23000	.61900	.04854
.200	12.130	.43990	.05910	.03640	.43940	-.01990	.03820	-.03790	-.26200	.62100	.04920
.200	14.150	.43880	.05870	.03600	.44220	-.02069	.03650	-.03900	-.28700	.62000	.05130
	GRADIENT	-.00024	.00007	-.00033	-.00022	.00012	.00114	-.00221	-.01716	.00025	.00004

OA110 861C11F12H51W124E4DV2R15X29

(RF5063) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .5000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .5405 SCALE

PARAMETRIC DATA

ALPHA = 10.500 BDFLAP = -12.000
ELEVON = .500 AILRON = .000
RUDDER = -25.500 SPCBRK = 25.000

RUN NO. 63/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CD	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.140	.44370	.05180	.02600	.44580	-.02862	.00130	.01840	.19900	.62800	.04510
.200	-12.120	.43980	.05810	.03430	.44310	-.02171	.00670	.01320	.16000	.62300	.04456
.200	-10.070	.42990	.06310	.04150	.43420	-.01494	.01240	.00740	.11800	.61800	.04393
.200	-8.070	.42220	.06730	.04680	.42750	-.00943	.01770	.00140	.07800	.61100	.04279
.200	-6.060	.41770	.07050	.05280	.42360	-.00550	.02240	-.00380	.03800	.60600	.04249
.200	-4.050	.41100	.07240	.05790	.41750	-.00237	.02620	-.00890	.00000	.60100	.04121
.200	-2.010	.40630	.07490	.05990	.41320	.00100	.02830	-.01320	-.03300	.59800	.03935
.200	.000	.40330	.07410	.05900	.41170	.00040	.03080	-.01780	-.06800	.59900	.04026
.200	2.020	.40560	.07370	.05680	.41610	-.00076	.03330	-.02260	-.10300	.60100	.04031
.200	4.020	.40970	.07130	.05470	.41580	-.00314	.03420	-.02600	-.13400	.60300	.04135
.200	6.050	.41740	.06780	.04940	.42280	-.00803	.03630	-.03000	-.16900	.60900	.04435
.200	8.080	.42360	.06470	.04540	.42840	-.01223	.03880	-.03420	-.20400	.61300	.04756
.200	10.120	.42680	.06200	.04190	.43100	-.01551	.04060	-.03720	-.23900	.61600	.04997
.200	12.140	.43660	.06170	.04050	.44060	-.01759	.03980	-.03840	-.26700	.61800	.05067
.200	14.180	.43510	.05970	.04220	.43870	-.01923	.03950	-.03960	-.29300	.61600	.05232
GRADIENT		.00003	-.00017	-.00047	-.00001	-.00016	.00104	-.00216	-.01676	.00035	.00006

DATE 55 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 64

04110 B61C11F12M51A24E40V2R15X29

(RF5064) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETER DATA

ALPHA = 10.000 BDFLAP = -12.050
 ELEVON = .000 AILRON = .000
 RUDDER = -25.000 SPOBRK = .000

RUN NO. 64/0 RIN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CV	KCP/L	CAB
.200	-14.120	.45310	.05260	.02640	.45520	-.02970	.00570	.01530	.19100	.63000	.04375
.200	-12.100	.44740	.05620	.02940	.45020	-.02507	.00640	.01170	.15700	.62800	.04237
.200	-10.050	.43450	.05950	.03400	.44200	-.02016	.01250	.00720	.11900	.62300	.04184
.200	-8.060	.42880	.06310	.03950	.43320	-.01489	.01700	.00180	.08000	.61800	.04003
.200	-6.010	.42480	.06540	.04360	.42520	-.01187	.02040	-.00290	.04200	.61400	.04010
.200	-4.030	.41770	.06880	.04640	.42330	-.00723	.02410	-.00790	.00500	.61000	.03866
.200	-2.010	.41720	.06910	.05060	.42290	-.00640	.02630	-.01220	.02800	.60800	.03949
.200	.010	.41520	.07000	.05010	.42100	-.00555	.02790	-.01610	-.06200	.60600	.03931
.200	2.040	.41610	.06950	.04820	.42180	-.00623	.02980	-.02620	-.09600	.61000	.03829
.200	4.040	.41900	.06710	.04570	.42420	-.00914	.03150	-.02450	-.13000	.61200	.03915
.200	6.060	.42440	.06340	.04110	.42890	-.01375	.03330	-.02830	-.16300	.61600	.04135
.200	8.090	.42920	.06190	.03920	.43330	-.01608	.03520	-.03220	-.19700	.61800	.04407
.200	10.110	.43460	.05980	.03590	.43830	-.01918	.03710	-.03550	-.23100	.62200	.04651
.200	12.140	.44260	.05690	.03160	.44560	-.02346	.03810	-.03780	-.26500	.62600	.04750
.200	14.130	.44740	.05600	.03090	.45010	-.02326	.03530	-.03820	-.28500	.62600	.04993
.200	GRADIENT	.00007	-.00015	-.00009	.00003	-.00016	.00091	-.00204	-.01674	.00030	.00005



DATE 05 AUG 74

TABULATED SOURCE DATA - OA1110

PAGE 65

OA1110 B61C11F12W51W42E40V2R15X29

(RF3065) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
LREF = 19.2299 INCHES YMRP = .0000 INCHES
BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
SCALE = .0425 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -20.000 SPDRK = .000

RUN NO. 65/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.110	.45320	.05030	.02570	.45690	-.03207	-.00170	.01950	.20700	.63100	.04308
.200	-12.100	.44690	.05440	.02800	.44940	-.02676	.00050	.01640	.17400	.62900	.04101
.200	-10.070	.44410	.05740	.03230	.44720	-.02329	.00450	.01220	.13800	.62500	.04098
.200	-8.080	.43370	.06130	.03600	.43770	-.01734	.00660	.00680	.09900	.62100	.03824
.200	-6.060	.42950	.06440	.04180	.43410	-.01375	.01210	.00180	.06100	.61600	.03734
.200	-4.050	.42590	.06650	.04590	.43090	-.01096	.01560	-.00300	.02400	.61200	.03731
.200	-2.020	.42020	.06860	.04870	.42570	-.00793	.01780	-.00750	-.00900	.61000	.03619
.200	.000	.41920	.06810	.04860	.42460	-.00820	.01990	-.01120	-.04400	.60900	.03715
.200	2.030	.42150	.06700	.04680	.42670	-.00974	.02120	-.01510	-.07700	.61100	.03799
.200	4.020	.42500	.06580	.04460	.42990	-.01154	.02270	-.01950	-.10900	.61300	.03862
.200	6.040	.42780	.06350	.04010	.43230	-.01426	.02480	-.02350	-.14300	.61700	.03941
.200	8.060	.43070	.05930	.03660	.43430	-.01696	.02740	-.02780	-.17900	.62100	.04331
.200	10.080	.43960	.05750	.03370	.44280	-.02236	.02970	-.03150	-.21400	.62400	.04588
.200	12.120	.44270	.05490	.03070	.44540	-.02545	.03270	-.03320	-.25100	.62600	.04638
.200	14.140	.44920	.05330	.03000	.45140	-.02827	.03220	-.03680	-.27700	.62700	.04898
	GRADIENT	-.00003	-.00015	-.00022	-.00005	-.00015	.00087	-.00202	-.01654	.00015	.00022

QAL10 B61C11F12H51M24E40V2R15X29

(BFS066) (08 MAY 74)

REFERENCE DATA

XREF = 4.4119 SQ.FT. XMRP = 43.5974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1875 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILRON = .000
 RUDDER = -10.000 SPOBRK = .000

RUN NO. 66/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	COF	CLM	CN	CAF	CYN	CBL	CY	KCF/L	CAB
.200	-14.120	.49610	.04730	.02200	.43920	-.03573	-.01020	.02470	.22400	.63400	.04142
.200	-12.110	.45090	.05040	.02460	.43260	-.03134	-.00800	.02120	.19200	.63200	.03950
.200	-10.100	.44700	.05430	.02740	.44950	-.02684	-.00330	.01650	.15200	.62900	.03601
.200	-8.070	.44340	.05600	.03060	.44630	-.02446	.00020	.01180	.11700	.62600	.03711
.200	-6.050	.44010	.05980	.03500	.44370	-.02023	.00380	.00680	.08100	.62300	.03432
.200	-4.040	.43320	.06160	.03900	.43720	-.01714	.00670	.00190	.04500	.61900	.03368
.200	-2.020	.42840	.06250	.04160	.43260	-.01583	.00910	-.00240	.00900	.61600	.03491
.200	.000	.42910	.06340	.04300	.43350	-.01465	.01170	.00690	.02500	.61500	.03430
.200	2.030	.42610	.06250	.04140	.43040	-.01488	.01410	-.01120	-.06100	.61600	.03507
.200	4.020	.42770	.06060	.03890	.43160	-.01705	.01550	-.01560	-.09300	.61800	.03540
.200	6.040	.43210	.05780	.03450	.43540	-.02057	.01850	-.02030	-.13100	.62200	.03707
.200	8.060	.43750	.05510	.03080	.44030	-.02426	.02080	-.02440	-.16500	.62600	.04016
.200	10.080	.44370	.05350	.02660	.44610	-.02700	.02330	-.02840	-.20000	.63000	.04183
.200	12.110	.45140	.05080	.02370	.45310	-.03156	.02690	-.03270	-.23700	.63200	.04412
.200	14.150	.45060	.04960	.02390	.45200	-.03305	.02580	-.03350	-.26400	.63200	.04585
GRADIENT	-.00066	-.00007	-.00007	-.00002	-.00067	.00006	.00112	-.00217	-.01715	-.00010	.00018



DATE 05 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 67

04110 B61C11F12M51M24E40M2R15X29

(RFS067) (08 MAY 74)

REFERENCE DATA

SREF = 4.4119 94.FT. WARP = 43.9974 INCHES
LREF = 19.2299 INCHES YWRP = .0500 INCHES
BREF = 37.9359 INCHES ZWRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = -10.000 SPOBRK = .000

RUN NO. 67/ 0 RM/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLF	CLM	CN	CAF	CYN	CBL	CY	XCF/L	CAB
.200	-14.110	.45930	.04690	.02130	.46030	-.03666	-.01080	.02480	.22700	.63500	.04157
.200	-12.110	.45420	.05020	.02380	.45580	-.03246	-.00800	.02160	.19200	.63200	.03964
.200	-10.060	.44630	.05310	.02660	.44860	-.02812	-.00530	.01650	.15400	.63000	.03819
.200	-8.070	.44380	.05580	.03020	.44660	-.02497	.00120	.01130	.11800	.62700	.03646
.200	-6.040	.43430	.05810	.03380	.43770	-.02096	.00390	.00640	.08100	.62300	.03438
.200	-4.040	.43100	.05970	.03850	.43470	-.01884	.00700	.00170	.04500	.61900	.03414
.200	-2.010	.42690	.06140	.04110	.43100	-.01640	.00940	-.00290	.00900	.61700	.03358
.200	.000	.42550	.06220	.04130	.42970	-.01540	.01210	-.00720	-.02600	.61600	.03390
.200	2.040	.42700	.06570	.03960	.43100	-.01716	.01450	-.01180	-.06200	.61800	.03340
.200	4.020	.42670	.05970	.03750	.43050	-.01804	.01610	-.01600	-.09400	.62000	.03483
.200	6.060	.43520	.05760	.03270	.43840	-.02169	.01870	-.02040	-.13000	.62400	.03687
.200	8.070	.43850	.05530	.02920	.44130	-.02446	.02050	-.02440	-.16400	.62700	.03961
.200	10.090	.44450	.05260	.02670	.44670	-.02828	.02320	-.02850	-.19900	.63000	.04252
.200	12.180	.45340	.05030	.02350	.45500	-.03215	.02720	-.03310	-.23600	.63300	.04409
.200	14.150	.45270	.04820	.02340	.45400	-.03404	.02640	-.03390	-.26500	.63300	.04574
GRADIENT	-.00042	-.00003	-.00003	-.00019	-.00042	.00004	.00116	-.00220	-.01750	.00015	.00016

0A110 561C11F12M91M24E40V20R15X29

(RF5068) (06 MAY 74)

REFERENCE DATA

SREF = 4.4119 SQ.FT. XMRP = 43.3974 INCHES
 LREF = 19.2299 INCHES YMRP = .0000 INCHES
 BREF = 37.9359 INCHES ZMRP = 15.1675 INCHES
 SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDFLAP = -12.000
 ELEVON = .000 AILERON = .000
 RUDDER = .000 SPOBRK = .000

RUN NO. 68/ 0 RNVL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-14.110	.43360	.04390	.02120	.45420	-.03626	-.02160	.03050	.24700	.63400	.04390
.200	-12.110	.45040	.04780	.02360	.45170	-.03382	-.01990	.02790	.21500	.63200	.04156
.200	-10.080	.45040	.05090	.02490	.45230	-.03072	-.01630	.02390	.17900	.63100	.04037
.200	-8.060	.43980	.05400	.02850	.44130	-.02561	-.01240	.01860	.14400	.62800	.03597
.200	-6.030	.43630	.05540	.03270	.43920	-.02372	-.00920	.01390	.10800	.62400	.03471
.200	-4.043	.43340	.05710	.03730	.43660	-.02151	-.00610	.00940	.07100	.62000	.03394
.200	-2.010	.42690	.05820	.03940	.43040	-.01930	-.00380	.00520	.03600	.61800	.03347
.200	.000	.42480	.05890	.04090	.42840	-.01825	-.00110	.00060	.00100	.61700	.03332
.200	2.020	.42920	.05840	.04020	.43270	-.01949	.00150	-.00410	-.03400	.61700	.03375
.200	4.020	.42700	.05820	.03760	.43010	-.02130	.00350	-.00870	-.06800	.61900	.03395
.200	6.050	.43260	.05500	.03330	.43550	-.02342	.00680	-.01370	-.10500	.62300	.03457
.200	8.080	.43510	.05290	.02980	.43760	-.02595	.00990	-.01830	-.14100	.62700	.03670
.200	10.080	.44210	.05030	.02620	.44390	-.02984	.01350	-.02300	-.17900	.63000	.03925
.200	12.120	.44730	.04610	.02270	.44830	-.03487	.01760	-.02750	-.21700	.63300	.04204
.200	14.120	.45060	.04430	.02150	.45150	-.03731	.01930	-.03050	-.25000	.63400	.04284
GRADIENT		-.00052	-.00006	.00007	-.00053	.00001	.00122	-.00226	-.01727	-.00015	.00001



DATE 09 AUG 74

TABULATED SOURCE DATA - 04110

PAGE 69

04110 861C11F12H51W224E40W0R15X29

(RFS069) (08 MAY 74)

REFERENCE DATA

REF = 4.4119 SQ.FT. WRP = 43.5974 INCHES
LREF = 19.2299 INCHES YWRP = .0000 INCHES
BREF = 37.9359 INCHES ZWRP = 15.1875 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 BDPLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPCBRK = .000

RUN NO. 69/ 0 RNL = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

WACH	BETA	CL	CLF	CLM	CN	CAF	CYN	COL	CY	XCP/L	CAB
.200	-14.120	.45630	.04540	.02090	.45700	-.03746	-.02140	.03050	.24700	.63500	.04353
.200	-12.110	.45350	.04850	.02320	.45480	-.03369	-.01970	.02760	.21500	.63300	.04169
.200	-10.020	.44980	.05280	.02600	.45200	-.02897	-.01620	.02370	.17900	.63000	.03835
.200	-8.080	.44430	.05500	.02870	.44700	-.02590	-.01290	.01930	.14300	.62800	.03630
.200	-6.050	.43930	.05700	.03200	.44240	-.02288	-.00900	.01390	.10600	.62500	.03377
.200	-4.050	.43290	.05730	.03680	.43620	-.02142	-.00600	.00930	.07000	.62100	.03413
.200	-2.020	.43050	.05950	.03930	.43420	-.01889	-.00380	.00500	.03700	.61800	.03324
.200	.020	.42840	.05920	.04050	.43210	-.01677	-.00100	.00250	.00200	.61700	.03385
.200	2.020	.43110	.05850	.03870	.43460	-.01997	.00150	-.00420	-.03400	.61900	.03465
.200	4.030	.43040	.05670	.03700	.43360	-.02159	.00370	-.00880	-.06800	.62000	.03464
.200	6.030	.43690	.05530	.03300	.43970	-.02414	.00700	-.01340	-.10600	.62400	.03592
.200	8.070	.44150	.05360	.02870	.44400	-.02663	.00980	-.01820	-.14100	.62800	.03741
.200	10.090	.44550	.05050	.02620	.44730	-.03045	.01390	-.02330	-.17900	.63000	.04017
.200	12.140	.44990	.04800	.02240	.45120	-.03373	.01760	-.02750	-.21700	.63300	.04078
.200	14.150	.45640	.04410	.02090	.45690	-.03868	.01900	-.03040	-.24950	.63500	.04414
GRADIENT		-.00022	-.00011	-.00001	-.00024	-.00007	.00122	-.00225	-.01718	-.00005	.00012